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ABSTRACT

Intended to provide background information for a special advisory commission created by the state legislature to study the desirability of a state library networking system, this series of 12 papers prepared by the staff librarians of the Virginia State Library summarizes the workings of various network programs, techniques for implementing them, and what has been done in other states as well as Virginia. The topics are "What Is a Library Network and What Can It Do?" "Network Architecture," "The Role of Utilities in Library Networking," "Network Economic Considerations," "Union Catalogs," "Interlibrary Loan Center," "Staff Development," "Cooperative Buying," "Delivery Systems," "Centralized Processing," "Reference and Referral Centers," and "Suggested Virginia Plan for Networking." (RAA)

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AN OVERVIEW OF LIBRARY NETWORKING IN VIRGINIA

Edited by

William J. Hubbard

Virginia State Library

Richmond

1981

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

TABLE OF CONTENTS

FOREWORD i

INTRODUCTION ii

What is a Library Network and What Can it Do
William J. Hubbard 1

Network Architecture
William J. Hubbard 7

The Role of Utilities in Library Networking
Mary H. Stockey and Thomas J. Hehman 12

Network Economic Considerations
Dale S. Snair 22

Union Catalogs
Barbara Thiele and Dale S. Snair 26

Interlibrary Loan Center
Thomas J. Hehman and Katherine M. Smith 31

Staff Development
Ida R. Patton 43

Cooperative Buying
Sandra L. Picchi and Sarah W. Crews 53

Delivery Systems
William R. Chamberlain 61

Centralized Processing
Linda A. Morrissett and Mary F. Guthrie 69

Reference andReferral Centers
Patricia L. Taylor and Carla L. Gregory. 74

Suggested Virginia Plan for Networking
William J. Hubbard 78

FOREWORD

The Virginia General Assembly in House Joint Resolution 239 (1981) created a Commission on a State Library Networking System. The commission was requested to study the desirability of a state library networking system. Several areas of concern were specified in the resolution as appropriate for the commission's review.

I have asked members of the State Library's staff to prepare brief papers on those subjects specified in the resolution. The purpose of the papers is to summarize what has been done in Virginia, and in some cases nationally, with regard to the various subjects under consideration. Our hope is that these papers will provide useful references for the members of the commission as they undertake this important study.

Donald Haynes
State Librarian

July 1981

INTRODUCTION

This series of papers was prepared by librarians at the Virginia State Library to address the concepts listed in House Joint Resolution No. 239: Creating a Commission on a State Library Networking System (see Appendix 1). The intent is to provide background information for the commission by discussing how these various programs work, techniques for implementing them, and what has been done in these areas in other states as well as in Virginia. It is our hope that they will expedite the work of the commission during its hearings and deliberations by providing ready information on the varied subjects to be discussed.

The first paper by William J. Hubbard, director of library services, explains library networking in terms of what it offers users, how it can improve operations, and how a network can be managed. Ideally, a network will open up the collections and services of all member libraries to the users of any single library. To be practical, a network must allow member libraries to do their work faster and more accurately at a smaller expense. These efficiencies in turn will be reflected in improved services to users. Finally, managing a network includes policy making, setting priorities of service, developing systems, consulting, training, and accounting.

In discussing the structure of a network, Mr. Hubbard describes centralized data processing, whereby all network members' records are included in one large file, as opposed to distributed data processing, in which each member maintains a local file with communications lines linking those individual files. Examples of different approaches to distributed processing are included.

In "The Role of Utilities in Library Networking," Mary H. Stockey, retrospective conversion project supervisor, and Thomas J. Hehman, head of interlibrary loan, trace the development of the four major fee-based library networks, outlining the comparative benefits of each. On-line literature search services are covered in this paper, as well.

"Network Economic Considerations" by Dale S. Snair, public library advisor, describes various methods of funding network operations. Costs associated with networks are discussed, as is the problem of analyzing the fiscal benefits of network membership.

In their paper, "Union Catalogs," Barbara J. Thiele, public library consultant, and Mr. Snair explain the different formats used in these locating devices. Of special interest is the section on the Catalog of Virginia Library Resources (CAVALIR) which has become a useful finding tool for libraries in the commonwealth.

Mr. Hehman and Katherine M. Smith, head of public services, describe the status of interlibrary lending in Virginia with emphasis on the development of the State Library's interlibrary loan center. Academic library net lenders are noted, as is the impact of regional networks and CAVALIR. New York, Illinois, and Florida interlibrary loan models are compared and the question of the need for a more formal structure in Virginia is raised.

"Staff Development" by Ida R. Patton, administrative consultant, describes the existing continuing education programs in Virginia. Staff development, as mentioned in HJR 239 could be, and to a certain extent already is, included in this program.

Sarah W. Crews, head of technical services, and Sandra L. Picchi, head of the order section, cover cooperative collection development in their paper, "Cooperative Buying." The effects of inflation on library materials and limits on library book storage space have caused a growing awareness of the benefits attached to cooperative acquisitions. In this paper, several existing programs are used as models, with the caveat that bibliographic and physical access to shared collections is requisite.

In "Delivery Systems," William R. Chamberlain, assistant director for the general library, compares alternatives to the U. S. Postal Service for delivering library materials throughout Virginia. Localities presently using delivery systems other than the mails are identified and the evaluation of a 1979 statewide trial project using a commercial courier service is included as an appendix.

In "Centralized Processing," Mary F. Guthrie, head of cataloging, and Linda A. Morrissett, head of documents, review the growth and demise of several library processing centers, enumerating the hazards each encountered. They conclude by pointing out a lack of interest in centralized processing (i.e., centralized ordering, cataloging, marking, etc., of materials for several libraries) among Virginia libraries when this concept was proposed by the state librarian in 1972.

Patricia A. Taylor, head of reference, and Carla L. Gregory, reference librarian, in the General Library Branch discuss reference and referral centers which, although not mentioned in HJR 239, can be an important part of networking. As librarians' libraries, reference and referral centers can back up smaller collections and assist in answering citizens' questions. Taylor and Gregory explain the State Library's role in this area.

In "A Suggested Virginia Plan for Networking," Mr. Hubbard recommends the development of a distributed library data base in the commonwealth. The conversion of bibliographic records to a standard machine readable format is seen as the first priority, and cost estimates for this conversion are given.

July 1981

William J. Hubbard
Director of Library Services

WHAT IS A LIBRARY NETWORK AND WHAT CAN IT DO?

William J. Hubbard

Library networks consist of two or more institutions linked by communication channels for a common purpose. Networking implies cooperation and sharing of resources for the purpose of enhancing services to the user and usually of increasing efficiency in library operation.

Given electronic linkages of networks, one immediately thinks of computer control. However, less sophisticated networks, such as those using teletypewriter communications or telephone linkages, have been in use for years. Inasmuch as a number of the major resource libraries in Virginia use, or are actively planning to use, computer processing, it would be counterproductive to exclude computers from a discussion of network planning.

NETWORK FUNCTIONS

Network functions can be classified in three categories: those with a direct benefit to library users, those which generate efficiencies in library operations, and those which are necessary to the management of the network itself.[1]

User Services. Resource Sharing is probably the most common objective ascribed to library networking. The ability to have access quickly to another library's bibliographic records is a real impetus to the sharing of collections. Networking provides the communications system for immediate location of bibliographic data: the faster and more accurate the transmission, the more effective the resource-sharing system.

Hardly less important than sharing resources is sharing the job of cataloging. The key to sharing catalog records is the completeness and the communicability of the bibliographic records. The MARC (Machine Readable Cataloging) format, developed in the 1960s by the Library of Congress, is the industry standard for storing and communicating bibliographic data. It is imperative that any data base or data bases intended for use in a statewide network adhere to this standard if records are to be passed among different libraries in the state and if the statewide network is to communicate with out-of-state networks.

Bibliographic records are no more than surrogates of information carriers (books, periodicals, films, etc.) so they are seldom an end in themselves. Interlibrary loan begins with the locating of a bibliographic record from some other library, which identifies the information a user wants. In the process of interlibrary loan, lending libraries must have the resources to locate the requested item, record the loan, and deliver the

material to the requesting library. The requesting library, in turn, must record the item as received, notify the user, deliver the item to him, receive it back in when the user has finished with it, clear the transaction, and deliver the item back to the lending institution whence it came.

We believe that one way to reduce the load of interlibrary loans is through universal borrowing privileges. In this the borrower, upon identifying a desired item held by a remote library, can go directly to that library and check out that item. Such a scheme works best in densely populated areas where distance may not be a major consideration. In fact, such arrangements are in place or are beginning in Tidewater, Northern Virginia, and the Richmond area.

Delivery of interlibrary loan materials is expensive and labor-intensive. Mail is used most frequently, usually insured. The Postal Rates Commission has recommended a 32% increase in the library rate. United Parcel and other courier services are more expensive than U.S. Mail, although faster delivery is provided. A statewide delivery service would require vehicles and drivers or contracts with commercial couriers.

Facsimile transmission (FAX) is a more sophisticated method of sharing information, but the state of the art must improve before the cost is competitive with courier services or mail.

Much interlibrary borrowing is done through photocopying. Periodical articles and other materials are frequently copies as an alternative to lending the items themselves. This is done for reasons of security and convenience, as periodicals are often hard to replace and are much in demand. The three factors working against large scale photocopying are expense (most libraries must charge from 5¢ to 15¢ per exposure to recover costs), labor (someone must do the copying), and copyright (the CONTU Guidelines to the 1978 copyright law, PL 94-553, are explicit in defining the limits to be applied to library photocopying).

Economies attributable to interlibrary loan photocopying are the reduced record keeping necessary since the transaction ends once the patron has the photocopies, and decreased delivery expense since the material must only travel in one direction, and is generally lighter in weight than the original. Photocopies can be regarded as a purchase by the patron, thereby making direct cost-recovery a reasonable consideration.

Reference service and referral of users to other sources of information are services that have been provided by libraries for years. In a network referral may be formalized by having members agree to provide certain types of information, and by having access to positive locations in members' catalogs. Referral can be made in person, over the phone, or on-line in a sophisticated system. The key is in knowing where information is, which is where networking comes into play. The growing state-

wide data base published on microfiche provides subject access to numerous library collections and, as a result, encourages referral and interlibrary borrowing.

An auxilliary service provided by some networks is retrieval (search services) from other organizations' data bases. These data bases are indexes of information sources that have been compiled by organizations (such as Lockeed and The New York Times) for their use, and then have been made available to libraries for fees. These services, which feature on-line access to indexes and abstracts, may allow library network organizations to broker their products at reduced rates to their members. The search services themselves can be viewed as types of networks, for their data bases are housed in one location and can be searched through dial-up, value-added networks (Tymnet® or Telenet®) as well as through long-distance commercial telephone lines. Searches are interactive, thereby giving the searcher freedom to choose index terms or strings of text and structure boolean operators as the results are known. Use of these services is expensive, but they provide the most efficient means of searching literature in-depth with the least effort. Unfortunately, subject coverage is uneven, with greatest strength in the sciences.

Union lists of library holdings are an indirect service of networks. Having libraries' bibliographic records in machine-readable format allows for their merging and the production of combined holdings lists of all member libraries. These lists can be checked to see which libraries own a specific title or a book on a particular subject. In this manner, they are extremely useful for interlibrary loan, reference and referral, and collection development.

Automated circulation control lets users know whether books are available in a library at a given time. Through a union list, a prospective borrower is able to determine that a neighboring library may own a particular book; however, that book may not be available for loan. An automated circulation system identifies books which are checked out, missing, in branches, at the bindery, or on reserve for another patron. Such information is especially valuable to the referral process. Although circulation control is primarily an operational efficiency, the materials-locating function of automated circulation systems should not be underestimated as an important user service, and the possible advantages of linking circulation systems should not be overlooked.

Operational Efficiencies. The foundation of a library network is a shared data base of bibliographic records. If this data base is accessible by the network participants, any number of library operations can be made more efficient.

Shared cataloging has been a reality for years, with the nations's libraries using the cataloging records printed by the Library of Congress on catalog cards, using records published in the National Union Catalog, and using MARC computer tapes produced by L.C. In the early 70's, the Ohio College Library Center (OCLC) made MARC

records available on-line through computer terminals to a number of academic libraries in Ohio. As the OCLC system became successful, regional consortia were formed to broker the system's services to libraries outside of Ohio. In our region, the Southeastern Library Network (SOLINET) offers this service. SOLINET has purchased a large computer and the software of the Washington Library Network with the intention of implementing a regional network that will offer services additional to those it brokers from OCLC, Inc.

The efficiency of shared cataloging is in the ability of several libraries to use the same or a very similar catalog record for a book. One a book has been cataloged by the first library (in practice, often the Library of Congress) the main intellectual work has been done. The next library to need the record may be able to use it as it stands or may make only minor changes dictated by the library's needs. This allows for many books to be cataloged by non-professional staff in much less time than would be required for original cataloging by librarians. Shared cataloging depends on professional trust and the willingness to accept another library's cataloging.

As demonstrated by OCLC, the product of shared cataloging is a data base of participating libraries' cataloging. As each library uses a record, it adds its symbol as a mark of ownership. A record then will list the libraries which have indicated that they own the book it represents. A user needing to use a book thus can find out which members of a network own it.

OCLC was first envisioned as a means of producing cards for libraries' catalogs. Until recently, its main product has been catalog cards produced to order. Automated card production through OCLC eliminated the need to duplicate cards locally and to add headings to each card. OCLC also offers printed book pockets and spine lables, which previously had been typed by hand or ordered from book jobbers. These services reduced the amount of work involved in card production, but did not affect the labor-intensive work of catalog maintenance (filling and updating catalog cards). Catalog maintenance requirements will be reduced by the production of microfilm catalogs and on-line catalogs.

The shared data base lets one network member know what other members own. This lends itself well to cooperative collection development, whereby two or more libraries agree not to duplicate each other's holdings of expensive or little-used items. One library may be willing to collect expensive sets or maintain subscriptions to secondary journals in one field, while its neighbors may do the same in other disciplines. Knowledge of other participants' holdings is necessary for this scheme to be effective, and this knowledge is made available through the shared data base. Each library must maintain a basic collection, but a shared-collection development program can be a real aid in making the hard decisions on what not to acquire.

Cooperative storage is also more attractive with a shared data base. Many libraries have materials which are required to support their missions, but which are used infrequently. Centralized storage of infrequently used materials is a logical solution to space problems. Economies such as narrow aisles, packed arrangement, and special high-density shelving systems can be used in such storage, allowing more books per cubic foot than is possible in open collections.

Bibliographic control, identification of items in storage, and delivery arrangements are problems facing any storage system. With cooperative storage these problems are compounded. To maximize capacity, all materials should be intershelved with each other, and to maximize sharing, bibliographic access should be available. If all storage items are accounted for in the data base and delivery is efficient, such a cooperative program can be beneficial to all.

Serials control and acquisitions (book ordering, receiving, and fund accounting) are library functions best carried out on local computers. Local accounting practices and frequency of updating the data base makes centralized data processing impractical for these operations. Given standardized bibliographic records, local systems can be linked through a network to provide access to other libraries.

Serials control involves ordering, fund accounting, receiving, and claiming serials subscriptions and standing orders. Holdings must be updated issue-by-issue, giving a very detailed statement of what a library owns. If accessible on-line, these data give a snapshot of the status of any title. Such detail may not be necessary for the library user, but the operational efficiency it allows in record keeping is evident.

Acquisitions systems perform the ordering and accounting functions for book purchasing. These features, when accessible on-line, form the nucleus of a management information system by showing the status of an order until it is cleared. Acquisitions can be viewed as a precursor to circulation by indicating the location of a title (on order, received, in processing) and the two systems in tandem form a logical sequence. If accessibe through a network, acquisitions can be of value in cooperative collection development.

Labor savings in improved accountability are the main operational benefits of automated circulation control systems. Labor savings accrue by eliminating the need to maintain a large and active manual file. Preparation of overdue and recall notices is assigned to the computer, eliminating the need to type letters. Accountability is enhanced by removing filling errors and providing multiple access points to the circulation records. Accuracy and timliness of records improve through machine processing,

while the statistics generated by an automated system can be beneficial in projecting future collection use. As with acquisitions and serials control, circulation systems are best designed for distributed processing.

NETWORK MANAGEMENT

The processes of networks which allow them to exist can be classed as management functions. There is a tendency to confuse these functions with governance but they are, in reality, the day-to-day operations needed to provide network services to libraries.

Planning and policy formulation must be based on the perceived and actual needs of the members. These needs are weighed against the realities of funding and the value of proposed services to the participants. Policies needed to protect the network and its membership include maintenance of standards, protocols for resource sharing, communications, fees, etc. Planning would exist within the framework of these policies, and would involve systems development and marketing. Priorities need be established among proposed network services. These priorities would be determined by the membership, given a sense of the operational and cost realities provided by network management. Once priorities are stated, services must be marketed to the member libraries so that the network can recover the costs of providing them.

Other management functions of the network are accounting, billing, development of network staff, training of the membership's staffs, and counsulting. Whether these activities are carried out by a private corporation, a state agency, or a non-profit institute, responsibility and authority must be centralized. The management requirements of a network cannot be underestimated in the potential success of such a venture.

FOOTNOTE

1. James G. Williams and Roger Flynn, "Network Topology: Functions of Existing Networks," in The Structure and Governance of Library Networks, ed. by Allen Kent and Thomas J. Galvin (New York: Marcel Dekker, 1979), p. 51 - 52.

NETWORK ARCHITECTURE

William J. Hubbard

There are two distinct archtectures which a library network could follow, although most functioning networks use combinations of these. The distinctions among them are based upon the location of the data base and on how communications are controlled.

Centralized. The star architecture (figure 1) consists of all network members linked directly to a central data base. Computer control for the entire network is maintained in one location and communication is through terminals linked to this computer. This is the OCLC model, where libraries throughout the country use terminals wired directly into dedicated computers in Columbus, Ohio. This architecture is straight-forward and, once the data base is in place, quite easy to implement. A large main frame and much on-line storage capacity is necessary to maintain the data base and to provide enough compute power to handle many simultaneous transactions. Charges for communications links are considerable as each terminal has dedicated telephone lines which must be leased, often for great distances. Processing capability at the user end is negligible, as individual libraries' data bases are not maintained on-site.

A variable of the star architecture has minicomputers or microcomputers at the user sites. Each of these is connected to the central main frame or has dial-up capability for communications. The complete data base is maintained centrally, but updates are made on the local computer then transmitted to the data base nightly. Some local on-line processing can be done in this manner, often using brief records, but interaction with the central data base is not constant. Such an architecture is good for small libraries concerned with local processing, such as circulation and acquisitions. It is less useful for large-scale resource sharing. The centralized main frame is still required to maintain the holdings of the member libraries.

Distributed. In a distributed network the data base is composed of individually maintained data bases. Each library holds its data base locally, with intercommunication taking place among them (figure 2). Local processing and local data base maintenance are inherent in this scheme. Although linking the network members is more complex with a distributed data base, each library has control over its own records and therefore can use them for local processes. The major expense of a mainframe and the problems of manipulating an extremely large data base are removed, but these expenses and problems are passed along to the local libraries on a smaller scale.

FIGURE 1 STAR CONFIGURATION

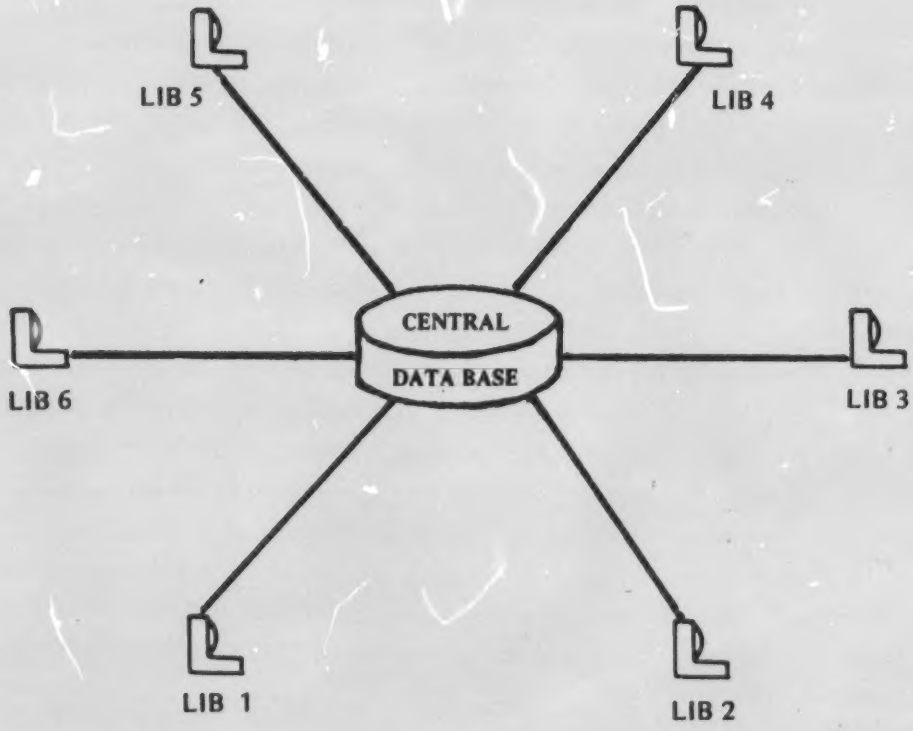


FIGURE 2 DISTRIBUTED

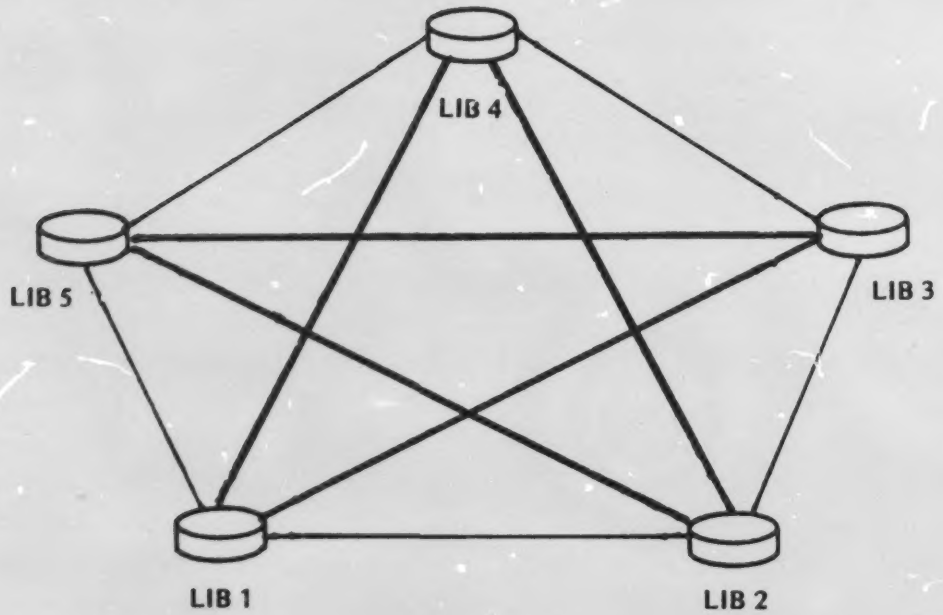
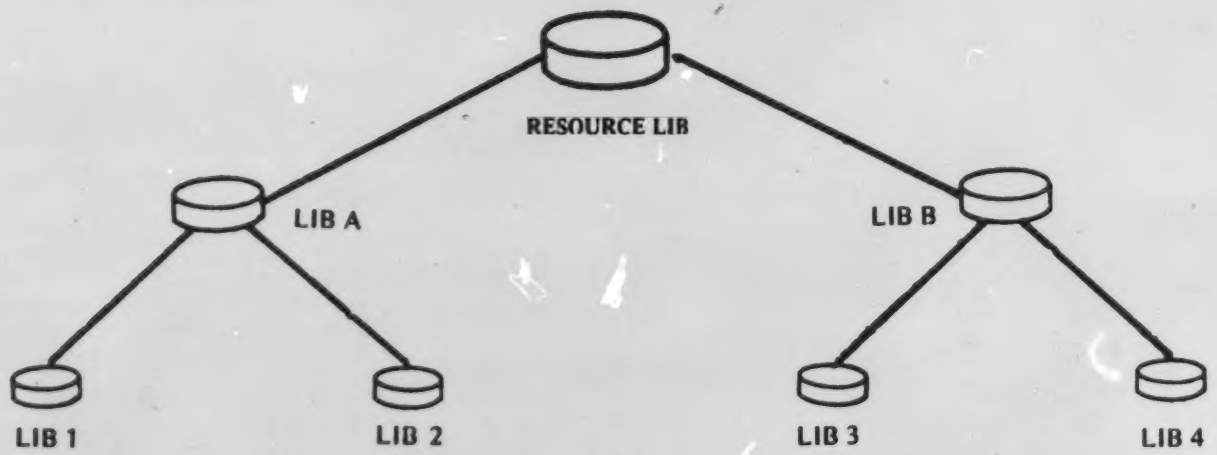


FIGURE 3 DISTRIBUTED HIERARCHICAL



Linking a distributed network can be on a hierarchical basis (figure 3) with a library querying the next larger library and so on until the desired record is found. The ring architecture (figure 4) would have library A query library B, then C, and D, etc. in a quasi-circular fashion until all possibilities have been exhausted. This is based upon closely proximate location of neighboring libraries as an attempt to minimize communications costs. Finally the star architecture can be used with the central node serving as a switching center (figure 5). This node may have a small data base or no data base at all. Its primary network function would be to direct traffic for the other nodes.

Any discussion of library networking must consider the problem of converting, processing, and maintaining bibliographic records. Unlike an inventory of nuts and bolts, a data base of library holdings consists of a large number of unique records. Each item is described in detail so it can be identified and retrieved. Access to each record must be from a number of points (author, title, subjects, call number, etc.) and many parts of the record are of variable length. A myriad of non-Roman characters and diacritical marks are used in records for foreign publications, and these must be stored and displayed in automated systems. Finally, the length of a bibliographic record is considerable, averaging over 1,000 bytes in the Virginia union list and approaching 2,000 bytes in the VPI & SU system. The size and complexity of bibliographic records has thwarted a number of library automation projects in the past decade.

FIGURE 4 DISTRIBUTED RING

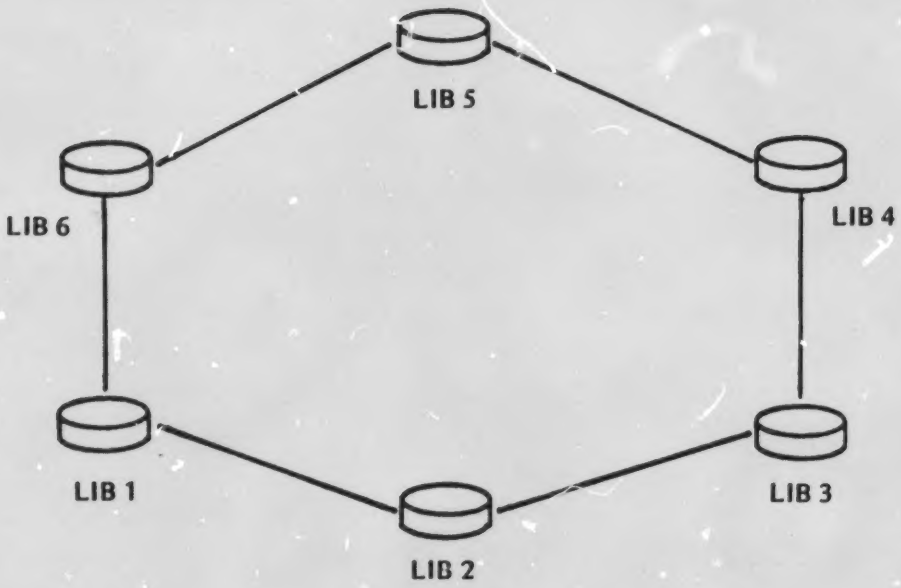
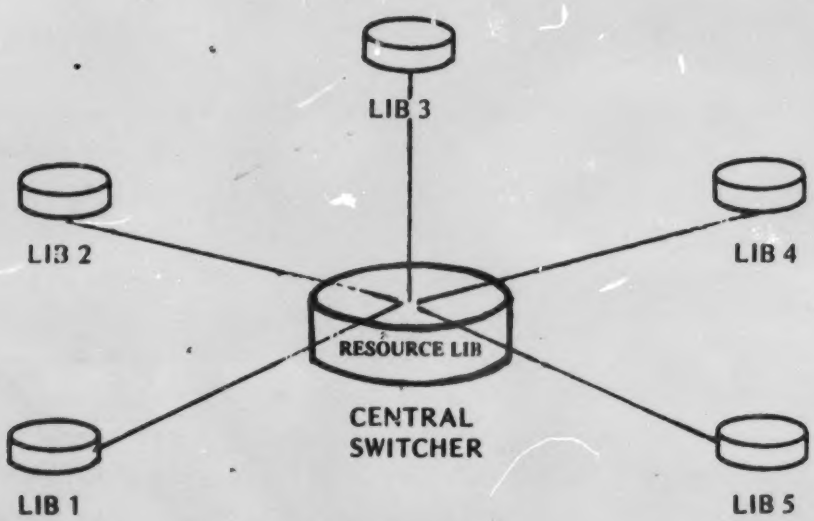


FIGURE 5 DISTRIBUTED WITH CENTRALIZED SWITCHING



THE ROLE OF UTILITIES IN LIBRARY NETWORKING

Mary H. Stockey
Thomas J. Hehman

Many library networks today are so heavily involved with automation that there is a tendency to think that networking is synonymous with automation. Indeed, as technology improves and costs for automation decline, the use of computers both for local and for networking purposes becomes more desirable and feasible for libraries of all types and sizes. Networks are designed to share resources between organizations; to accomplish this sharing, a communications link is essential.[1] The communications link may be as pedestrian as a telephone, or as sophisticated as an on-line computer system. It is therefore essential to understand the role of the computer utilities that provide much of the automation for library networks.

The organzations that provide on-line computer services to libraries are called bibliographic utilities. These organizations design the computer software (programs, documentation), maintain the hardware (the computers and terminals), and provide a multiplicity of services to libraries and networks. There are two types of on-line computer utilities that support library networking: 1) Search service utilities or networks, such as SDC and Lockheed. These systems are used to retrieve bibliographic information from a data base. 2) Customized service utilities or networks, such as OCLC, RLIN, WLN, and UTLAS. These systems are used to input, modify, and retrieve bibliographic information in the data base.[2] While some background information will be provided on other aspects of computerized networks, the focus of this paper will be on the customized service utilities. Futhermore, some specific utilities will be described, and the role of the utilities in library networking will be examined.

The search service networks are on-line systems that are used for retrieval only and are characterized by such commercial systems as Lockheed and System Development Corporation (SDC). These services maintain data bases which are indexes to periodicals, dissertations, and other publications. In the fall of 1979 it was estimated that these utilities "provided access to over 130 data bases containing information in all fields of science, technology, law, medicine, and the humanities."[3] For instance, Chemical Abstracts, long a printed index to literature on chemistry, is now available on-line for retrieving citations. In this type of system the user never enters citations, only attempts to retrieve them. The creation of the data base is done by the individual organizations that have long done the indexing and abstracting of various literatures. Utilities like SDC and Lockheed buy these computerized indexes and make them available at a fee to other organizations, such as libraries.

The customized service utilities also maintain their data bases in an on-line mode which is accessed by terminals. The difference here is that the users also add to the data base, and when using individual records from the data base, may change the record according to their own needs. Another difference between the use of customized service utilities and the search service utilities is exclusivity. Libraries may, and do, use more than one search service utility, but presently they use only one customized service utility. The search service utilities are available on a fee-for-use basis, whereas the customized service utilities are available only on a contractural basis.

The development of customized service utilities began in the mid 1960s. In 1965 Fred Kilgour and Ralph Parker proposed the development of a computer network for Ohio college libraries.[4] This system, now OCLC, is presently the largest of all the utilities and services clients throughout North America. In 1959 the University of Toronto Library began converting its cataloging records to machine readable form (computerized form). From this beginning grew the University of Toronto Library Automation System (UTLAS). Two other major, non-commercial utilities are the Washington Library Network (WLN) and the Research Libraries Information Network (RLIN), each also begun in the 1960s and achieving fruition in the 1970s. All began with narrower goals than they have now achieved; OCLC was designed to serve Ohio college libraries, UTLAS and RLIN began as local systems, and WLN began as a single state system and has grown to a multistate system. Furthermore, all began as batch processing before going on-line.

One of the most important events to take place in the development of computerized library services was the creation of the MARC (MAchine-Readable Cataloging) format by the Library of Congress.[5] The Library of Congress developed the MARC format so that its own cataloging could be computerized. The MARC format is now the international standard format for machine-readable bibliographic data. It is a flexible format allowing fields of variable length, an attribute essential to library cataloging. The MARC format accommodates cataloging for books, serials, musical scores, audiovisual materials, maps, sound recordings, and manuscripts.

While the four major utilities were developing simultaneously and independently, many other groups were also working on plans for automation. Some of these projects "achieved operational systems, and some did not. All these attempts are important; they created local consortial structures."[6] In the early 1970s OCLC became the first network to achieve on-line status; it soon became a multitype and multistate network, and really became the first customized service utility. "The success of OCLC caused several consortia to suspend, to abandon, or to change local processes and plans as they signed contracts for OCLC service."[7] From 1971 to 1977 the utilities grew horizontally "as more libraries joined established networks. OCLC

went on-line in 1971, BALLOTS now RLIN in November 1972, the Washington Library Network (WLN) in 1974, and the University of Toronto Library Automation Systems (UTLAS) in December 1973."[8]

The technology that made the utilities possible literally transformed libraries. In ten years many library functions have been altered beyond recognition, especially in processing library materials. Now the development of the utilities is "characterized by vertical growth and integration rather than horizontal spread of similar systems."[9]

Today the utilities are accessed through network service centers. The networks provide broker services to the libraries, but do not provide on-line capabilities. The network office also provides planning, installation, training, consultation, contracting and billing services for its members. In addition, the networks provide such services as production of microform catalogs and union catalogs. Usually networks represent a geographic area, such as the Southeastern Library Network (SOLINET) to which the Virginia State Library and thirty-seven other Virginia libraries belong.

The utility provides the on-line services, through contractual arrangements with the network on behalf of the network's members. The utility is responsible for planning, finance, design, research and development, quality control, system documentation, training of network staff, and maintenance of the computer hardware and software.[10]

The whole system relies on the data base of bibliographic records, the commodity which the utility maintains and the network brokers. The functions and services a data base can now support include: cataloging, acquisitions, serials control, authority control, circulation, catalog production(in cards, microform, books, on-line), management services (such as accounting and statistical reports), and interlibrary loan. Not all utilities provide all these services, but the technology today makes them capable of doing so.[11] In addition to these services, each library creates an archival record of its on-line transactions which the utility puts on magnetic tape. These archival tapes are available to the library so that it can obtain other services, such as the conversion of cataloging records to circulation records. Also, the tapes can be loaded onto a local computer to make an on-line catalog. The tapes from many libraries can be combined to form a new data base, possibly for a local or regional area.[12] The archival tapes for Virginia libraries have been combined to form a Virginia data base and from this the CAVALIR microform catalog is produced.

OCLC was formed in 1967 under the dynamic leadership of Frederick Kilgour. By 1970 OCLC was performing batch processing for fifty-four Ohio college libraries and in 1971 went to on-line processing. The batch processing had provided a

smooth transition period from a manual cataloging process.[13] These libraries also found great economy in using the Library of Congress MARC records and the original cataloging records contributed to the data base by the participating libraries.[14]

Not long after OCLC went on-line in 1971, the demand for service and the success of the system led OCLC to open its membership to libraries outside of Ohio. "Customers . . . were attracted by the economies of scale and the expectation that a large data base would include many, if not all, records needed."[15] From fifty-four college libraries in Ohio in 1971, OCLC has now grown to over "2500 member libraries from Alaska to Puerto Rico"[16] "representing almost every type and size of library."[17] In August 1971 there were 100,000 records in the data base;[18] now there are seven million records and OCLC now has eight computers on-line to serve its members.[19] By the end of the 1970s, OCLC members were adding 3,000 records to the data base daily.

Until the late 1970s OCLC's horizontal growth diverted much of its energy and resources to keeping up with the demand for basic on-line services. However, many older members were anxious for OCLC to add new capabilities, and OCLC has developed new subsystems and enhancements. The whole system revolves around the data base created by MARC records and shared cataloging input by member libraries. This data base now supports subsystems for cataloging, serials control, and interlibrary loan. Much more has been promised and OCLC has been criticized for not delivering on those promises and providing a greater depth of services. The leveling-off of new demand and increasing competition will spur all the utilities to develop new services over this decade.

"OCLC service centers emerged in the early 1970s in response to demand for access to OCLC services . . . . By May 1980, there were 21 OCLC service centers which handled nearly 90 percent of the terminals linked to OCLC."[20] The Southeastern Library Network (SOLINET) is the largest network brokering OCLC services, covering ten states in the southeast, providing OCLC services to 298 libraries. SOLINET "was founded in 1973 to accomplish a very specific objective: replication of the OCLC shared cataloging system in the Southeast. However, for reasons that seemed persuasive at the time, SOLINET elected to enter into an interim agreement with OCLC whereby it would serve as a broker for OCLC services until other, more permanent arrangements could be made. That interim arrangement has continued to the present."[21] SOLINET's services to member libraries include training programs, billing, planning for installation of terminals, and other services.

As previously stated, SOLINET's original mission was phrased in terms of an independent organization providing OCLC-like services. In the past few years, while brokering OCLC services, SOLINET has also tried to plan for a more independent future. SOLINET would like to provide its own enhancements to the OCLC system and

also supply complimentary services. The move toward a role more as a utility than a network arises from several factors, including the increased competition from other utilities and a dissatisfaction with OCLC's slowness in providing additional automated systems. The current state of technology makes many services feasible, but OCLC has not yet been able to offer many of them. For instance, a regional data base would be possible, or the conversion of cataloging records to records for use in an automated circulation system, or the provision of subject searching. All the subsystems in the OCLC system could be enhanced.[22]

SOLINET would like to make such services available to its membership. Therefore, in 1980 SOLINET purchased the WLN software. WLN's software is probably the most advanced of all the utilitites' and will provide SOLINET with many new capabilities. SOLINET intends to use the WLN software in tandem with OCLC services.[23] In November 1979, SOLINET began development of a new system called the Regional Support System (RSS) which will develop and implement many of the services lacking in OCLC. SOLINET hopes that the RSS can provide the southeast with capabilities OCLC will not be developing for a long time, if at all. Furthermore, SOLINET and OCLC hope to cooperate on many of these developments.

Many of the services OCLC users are now clamoring for are available in some of the newer, smaller utilities. The Washington Library Network (WLN), the Research Libraries Information Network (RLIN), and the University of Toronto Library Automation System (UTLAS) have all developed more sophisticated, varied systems, but all three are considerably smaller than OCLC. In this decade, while OCLC develops more depth to its system, these other utilities will probably expand their services to other libraries, and thereby grow horizontally. Each of the networks has unique features worthy of replication and expansion.

UTLAS has the longest history of the utilities, since conversion to MARC format began in 1959. Today UTLAS serves over two hundred libraries in Canada and one in the United States (the Rochester Institute of Technology).[24] The utility is accessed through networks, and each participating library creates its own bibliographic file. UTLAS encourages each library to share its bibliographic file, but each library can decide if it wishes to share and if it wishes to charge a royalty for sharing its data; most libraries are not charging at this time.[25] The UTLAS data base is second in size to the OCLC data base, with over five million records. Some of the older records are stored off-line to save storage space in the on-line file. However, the index points are still on-line, so that access to the record is not lost. When a user requests something that is stored off-line, the system responds that the record will be available the next day. Then overnight the record is moved from the off-line storage to the on-line file.[26]

UTLAS has been praised for its flexible, advanced software, and it has certainly taken a unique approach to some of the problems facing the utilities. It is the least centralized of the utilities, allowing much autonomy for the networks and libraries. Among its support systems are: cataloging, on-line ordering from many vendors, authority control linked to the bibliographic records, and the ability to be linked with circulation systems. A serials control system is planned for future implementation.[27]

RLIN was originally designed for the academic research library of Stanford University and was operational by 1972. The automated system was first known as BALLOTS (Bibliographic Automation of Large Libraries using an On-Line Timesharing System) and first served Stanford, and then other California libraries.[28]

The Research Libraries Group (RLG), a consortia of Columbia, Harvard, and Yale Universities and the New York Public Library, decided in early 1978 to adopt BALLOTS for an automated system to further RLG's goal of cooperative resource sharing. Harvard disagreed with the decision to use BALLOTS and withdrew from RLG, but at the same time Standord University joined. At this time the name of the automated system was changed from BALLOTS to the Research Libraries Information Network (RLIN) to more accurately reflect its scope. During this period of transition RLIN experienced some financial instability, which to some extent is still a problem. It was determined that RLIN would need twenty-five to thirty members to achieve financial stability, so in 1979 other research libraries were invited to join RLG and thus have access to RLIN. Presently there are over twenty members and RLIN's future is more secure.

RLIN offers subsystems in cataloging, serials control, fund accounting, and acquisitions. "RLG views RLIN as the vehicle for carrying out its programs in the areas of preservation, shared collection development and management, and shared resources among the research libraries."[29] These goals are certaily more manageable with RLG's size than on a scale like OCLC's. The step-children of RLIN are the non-research libraries in California that joined Ballots. These libraries use RLIN through a network call CLASS and little is said about their role in relation to the RLG libraries.

RLIN's data base is a hybrid of UTLAS and OCLC. As in UTLAS, each library has had its own cataloging in a separate file, but like OCLC, the data is common property. But this file structure requires a great deal of on-line storage space, so this year RLIN plans to restructure the entire data file. This tremendous job could be a source of trouble.[30]

The searching capabilities of RLIN are one of its most attractive features. It is a flexible, powerful, yet simple system, employing Boolean logic. In addition to the

standard indexed data (such as author and title), searching subject headings and classification numbers provides subject access, long a source of discontent with OCLC. Furthermore, RLIN stongly emphasizes a quality data base, and the fee structure penalizes errors. [31]

When RLG opened its membership, it put RLIN in direct competition with OCLC. Previously each utility served an exclusive population. Many research libraries that joined RLG discontinued their OCLC affiliation (although most remained members of the networks through which they had used OCLC). RLIN will continue to attract clientele away from OCLC because it will address the common needs of a small group. It is now an alternative for research libraries where none existed before.

WLN is the youngest, smallest, and most advanced of the utilities. It is a state agency under the direction of the Washingotn State Library and was developed to be the centralized library network for libraries in Washington.[32] It began on-line processing in 1977 and today serves the Pacific Northwest and soon the Southwest.[33] It is being replicated at the national library in Australia, and at SOLINET. WLN does not presently envision a national scope; rather it wants to sell its software to other utilities and networks so that they can provide enhanced services. Even so, WLN is entering into competition with other utilities by expanding into California (RLIN) and the Southwest (OCLC). However, WLN says it cannot support indefinite expansion.[34]

Presently WLN's data base is fairly small, with about one and a half million records. The MARC records form the core and WLN's members find most of their needs met by these records. [35] Quality has been taken more seriously at WLN than at any other utility. There are on-line quality checks and also checks by WLN staff before a new record is added to the data base.[36] While this is commendable, it would hardly be possible on the scale at which OCLC operates.

The WLN system provides services in cataloging, acquisitions, reference and circulation. The acquisitions system follows an item from the time it is ordered until it is paid for and includes a fund accounting capability. WLN is also working on serials control and interlibrary loan subsystems.[37] In addition, WLN provides subject access to the data base.

There is a great deal of talk about a national library network, but thus far no clear model has crystalized. The four non-profit utilities examined here are by no means the whole picture. The commercial sector has entered the utility field and must have a role in a national network. A lot of competition as well as cooperation exists on both a formal and informal basis. For example, WLN and RLIN are engaged in some cooperative development projects, WLN will be replicated in SOLINET's RSS, UTLAS is moving into the U.S. market, and OCLC and WLN are expanding in the foreign market.

The utility and networking functions are not always distinct, WLN is both a utility and a network and SOLINET is moving toward a utility role with its RSS. Utilities will expand and probably cooperate, but it is doubtful that they will merge into one network, nor is it desirable that they do so. The unique features of the systems, their varied approaches, and the different markets they serve provide greater options for libraries.

Library utilities have made great progress in the ten years since OCLC went on-line in Ohio in 1971, serving fifty-four libraries with 100,000 records. Today there are four major utilities serving libraries throughout North America with millions of bibliographic records. The revolution in library processing brought about by computerized services makes it clear that networking and automation are indivisible, if not synonymous. New technology is providing new capabilities yearly and the diminishing cost of computers puts automated networking within the reach of even small libraries. Library networking is the future and automation is the tool for its accomplishment.

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NETWORK ECONOMIC CONSIDERATIONS

Dale S. Snair

The effects of inflation have spread to almost every segment of our economy and libraries have not escaped their influence. Fiscal concerns combined with a rapid expansion in the volume of knowledge and resultant demands for that knowledge by users all have brought serious pressures to bear on traditional forms of library services.

Recent inflationary trends have had a significant impact. It has been calculated that the labor-intensive operations of libraries rose in cost 6.3 percent per year between 1950 and 1970.[1] The average price per hardcover volume in 1975 was $16.19 while preliminary data for 1979 indicate an average cost of $22.80, or a 41 percent increase.[2] Similar price increases have affected the cost of storage space and other materials that are utilized in library operations. In particular, the public library, relying as it does largely on local tax sources to meet its program demands, faces a struggle to maintain its support as it competes for the limited funds of its community.

The difficulty that a library may encounter in making its case for a share of limited funds is complicated by lack of sophisticated methods for analysing public services. While cost-benefit analysis and cost-effectiveness analysis methodologies may be appropriate for some facets of library operations, it is obvious that traditional library service also encompasses many characteristics that are most difficult if not impossible to quantify. A lack of standard definitions for costs has also impeded general observations and comparative analyses.[3]

Faced with rising inflation and increased budget competition, economic considerations have become a significant motivating factor for libraries in considering whether or not to join a resource sharing network. The basic financial problems a network will encounter differ only in degree from those of individual libraries, but certain economic advantages from networks have been observed.[4]

One of the benefits usually associated with networks is the opportunity for a library to take advantage of the principle of economies of scale. Specifically, by automating various activities common to libraries, it is felt that the unit cost for these activities is lowered. While no analysis exists which actually concludes that computerization on a network basis is cost-effective for the full range of library public and technical services, it has been projected that by approximately 1982, the increasing volume of published information combined with the decreasing cost of computer and telecommunications equipment likely will make networks cost effective.[5]

Another important rationale for library networks is the greater use of existing and future resources that can be had with only slightly increased costs to an individual library. In many cases valuable and expensive sources of information are being underused today because of the difficulty of access to these items. In this regard, it has been suggested that network response time can be utilized as a measure of effectiveness while costs could be measured by including the capital costs involved in the purchase, maintenance, and access to information (e.g. books, indexes, and computers).[6]

The actual cost elements for any network will be dependent upon how the network is structured and operated. Communication costs should be specified in terms of equipment, routing channels, volume, and outlets. Other costs may vary between simple and complex networks. Any funding formula will have to deal both with a system for raising money and the systems for disbursing it. However, before a viable formula for network support can be advanced, the questions of what kind of network, its stages of development, and who pays for what must be answered. To do otherwise would be to prescribe a remedy before diagnosis.[7]

It is possible, however, to suggest that network funding be considered along two dimensions: (1) fixed and recurring costs, and (2) start-up and operating costs.[8]

Start-up costs might include a director's salary or initial outlays for data processing or communications equipment. A director's salary may be necessary before any services are available and if it is anticipated that fees from network participants will pay for this salary on a recurring basis, a problem might arise in the initial stages of development.

Fixed costs are often associated with expenditures for computers or telecommunications equipment. A minimum number of participants may be necessary before a network can benefit from discounts available with large purchases of equipment. Recurring costs include salary expenses, education and training costs for participants in the network, and promotional work to encourage new members.

The source of funding is a very important issue. Federal funds have been not available on a recurring basis. Another source of funding has been state agencies which generally support networks through specific budget items and grant or seed funds. The Illinois Library Network (ILLINET) is funded from the budget of the State Library which utilizes both federal funds and state general funds. ILLINET also uses seed money to support research and development projects which are intended to improve the overall quality and efficiency of network services.[9]

A third source of funds for networks is local funds. These funds might be drawn from the local tax base or they might be funds derived from the individual patrons

in the form of a charge for a specific service such as copying or an on-line search of a data base. These patron charges are often justified as charging for a customized service where the patron usually has the choice of a "free" service as an alternative.

The methodology for recovering network costs from participating libraries must be considered also. In general these payments have taken the form of either one-time fees, yearly fees, or per unit service fees.[10] Some networks require a one-time initiation fee plus other fees such as a per unit of service fee. There are also packaged fees which cover a certain number of uses before per unit charges are initiated. Other systems require a yearly membership fee which can be renegotiated like a contract which specifies the levels of the different services which are purchased. The basis for a fee may be population served, enrollment in academic institutions, a percentage of operating or book budgets of participants, or volume of interlibrary loan.[11]

In the final analysis, the fiscal effectiveness of a network in terms of reducing costs may be very difficult to estimate. As pointed out earlier, in this regard, networks experience the same difficulties of measurement as do individual libraries. Often only experimentation with a system will be enough for a final decision.[12]

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UNION CATALOGS

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A union catalog is a list of the cataloged resources of two or more libraries. It is never complete or finished but rather, it endeavors to reflect, at any moment, the actual holdings of its constituent libraries.[1]

The first union catalog appeared in 1406. It was a book catalog of the holdings of English monastery libraries.[2] From their earliest beginnings, union catalogs have been seen as a way to share scarce resources and as a means of helping scholars locate needed materials.

Union catalogs today may take several forms. An individual library system with several branches may maintian a union shelf list in card format for acquisitions and inventory purposes while another system may have developed a book catalog showing which branch has a copy of each title so as to utilize more fully the resources of the entire system.

In addition, groups of libraries have developed union catalogs of books and/or periodicals which may be maintained in several forms. In the state of Nebraska, for example, a union catalog is maintained from shelf list cards sent to a central source by participating libraries. Union catalogs of this type are labor-intensive in that they require staff at the central point to check the cards that are sent in from the participating libraries, add the holdings information to the central file, and answer requests for the locations at which a particular title is available. A union catalog in card format usually implies that such activities as interlibrary loan will be centralized.

Another common format for the union catalog is the book catalog. Because multiple copies of this catalog can be printed, all libraries cooperating in the creation of the union catalog can have a copy of the group's holdings. The major drawbacks to the book catalog include the cost of printing and the fact that they are generally out-of-date by the time they are printed. An example of a book catalog is the Virginia Union List of Serials.[3]

Yet another form of union catalog has been developed by groups of libraries using local computer facilities. Very basic information, such as the author, title, publication date, and library name, is key-punched onto computer cards which are then used to create a data base of library holidngs that can be published in micro-form. The union catalog of the Lynchburg Area Cooperative, a group of sixteen academic, special,

and public libraries, is an example of such a catalog. This type of catalog has proved to be highly useful, and much cheaper to produce than book catalogs. Its major drawback is that it contains data in a nonstandardized format. As a result, it is difficult to merge these data with those from other libraries which have machine-readable data bases.

The advent of OCLC - an online cataloging utility - has brought standardization to the computer-based record of library cataloging information. The standardized record format, MARC (Machine Readable Cataloging), assures that an individual librarys holdings, whether created through OCLC or some other computer method, can be merged with another library's holdings. In addition, OCLC has developed an automated interlibrary loan system which utilizes its cataloging data to give member libraries nationwide access to the holdings of participating libraries.

In Virginia, the State Library, using state and federal money, has developed the Catalog of Virginia Library Resources (CAVALIR). Libraries which are members of OCLC have agreed to allow the state to obtain their archival tapes which contain the cataloging and holdings information entered by each library into the OCLC online system. The tapes are received monthly and contain all records entered during the month.

For the first edition of CAVALIR, published in March, 1979, the cataloging information of 22 academic libraries was included. A private data-processing contractor, The Computer Company, merged these machine-readable records to create the union catalog on microfiche. The first edition of CAVALIR contained approximately 315,000 titles on 616 fiche.

CAVALIR is a divided catalog. That is, there are separte alphabetical sections for authors, titles, and subjects. The last full issue, which appeared in September, 1980, was composed of 1,576 fiche and contained an estimated 800,000 unique titles (approximately 1,552,000 volumes). Thirty-one academic libraries, three public libraries, and the Virginia State Library contributed their cataloging to this edition.

The CAVALIR data base has now expanded to include cataloging from libraries which are not participants in OCLC. These non-OCLC libraries are creating a machine-readable data base of their entire library catalog (a retrospective conversion of their card catalog) using private contractors. The State Library has also awarded federal grant monies to nine public libraries for the retrospective conversion of their holdings, the data from which will be added to the CAVALIR data base.

In January, 1981, the cataloging of the Virginia data base was upgraded by computer matching of the records against the Library of Congress machine-readable records. This upgrade has removed duplicate entries for the same title and has replaced

local library cataloging with that from the Library of Congress. The next full issue of CAVALIR, expected in September, 1981, will reflect this upgraded cataloging.

CAVALIR has gained wide acceptance across Virginia in all types of libraries. In addition to becoming the principal interlibrary loan tool for libraries without access to OCLC, it is also being used increasingly as a cataloging aid. In addition, reference departments and researchers have found it to be a valuable source for compiling bibliographies on a wide variety of subjects.

CAVALIR is growing rapidly with approximately 50,000 records being added to the Virginia data base monthly from OCLC archival tapes and the several retrospective conversion projects. Of these records, approximately 37 percent are for unique titles. From September, 1979, to September, 1980, CAVALIR grew from 777 fiche to 1,576 fiche and the cost increased from $39,152.28 in September, 1979, to $81,741,06 in September, 1980. The next full issue of CAVALIR, which the contractor estimates will have over 1,000,000 unique titles, will require over 2,000 fiche.

CAVALIR will continue to grow as more and more libraries convert their holdings to machine-readable form. Several options for coping with this future growth are available.

One is to increase the number of libraries receiving CAVALIR. At present, all state-aided public libraries, all academic libraries, six institutional libraries and five special libraries receive CAVALIR. Requests for copies of the catalog have come from school libraries and from additional special libraries. Several special libraries are, at present, purchasing CAVALIR on a yearly subscription basis from the contractor. As public and academic libraries come to rely on CAVALIR as an interlibrary loan tool and to require that it be cited on any interlibrary loan request, it may become necessary to provide the catalog to libraries not presently receiving it.

Another alternative is the production of regional catalogs which would contain only the holdings of libraries within a particular area. This would not only make the size of the catalog more manageable, but also would mean that interlibrary loan requests would go first to those libraries which are closest, thus lessening the transaction time involved. Furthermore, the regional catalog would lessen the dependence of all libraries in the state on a few particicularly large resource libraries, since each library would have to check within its region first. A disadvantage of the regional catalog would be the loss of statewide access since some titles would not be held within a particular region; therefore, access to the statewide CAVALIR would have to be provided in some form.

Biennial production of complete updates to CAVALIR with quarterly cumulative supplements is a third option. A biennial complete issue of CAVALIR would reduce the cost, but, in most cases, would also necessitate checking two issues in order to obtain locations.

A fourth alternative is the establishment of a statewide, online catalog with terminals located in every library. The principal advantage of the online approach is the immediate access it would give to all titles, particularly if some form of interlibrary loan system, similar to that of OCLC, were also available. The principal disadvantage of this approach is the cost involved; however, the continuing costs of computer production of CAVALIR and its fiche will make this option cost-effective at some point.

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INTERLIBRARY LOAN CENTER

Thomas J. Hehman
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In 1876 Samuel S. Green, Librarian of the Worcester, Massachusetts Free Public Library proposed that libraries lend books to each other for short periods of time to better serve readers whose needs extend beyond the collection of their own library. He realized that no library could hope to be completely self-sufficient and that interlibrary cooperation would be beneficial, both to libraries and their patrons. Mr. Green maintained that "If libraries were to agree to help one another in this way, much good would result."[1] The concept of interlibrary loan, advocated in this modest statement, is particularly valid in an era of rapidly expanding knowledge, sophisticated library users, and inflationary pressures on book budgets.

The American Library Association (ALA), founded in 1876, the year of Mr. Green's proposal, has supported and encouraged interlibrary cooperation since that date. ALA adopted the first interlibrary loan code in 1917.[2] There have been several revisions of the code, the most recent in 1980, and it is now published in two versions. The "National Interlibrary Loan Code, 1980" and the "Model Loan Code for Regional, State, Local, or Other Groups of Libraries" were adopted by ALA to regulate borrowing and lending relations between libraries. The National Code, which applies to research libraries and other libraries that have no pre-existing agreement to cooperate, states that the purpose of interlibrary loan is to "obtain, for research and serious study, library material not available through local, state or regional libraries."[3] (Interlibrary loan includes the provision of photocopies as well as the loan of returnable items.)

The Model Code is intended to "provide guidelines for any group of libraries interested in developing an interlibrary loan code to meet special needs."[4] The Model Code is less restrictive as to the purpose and scope of interlibrary loan than the National Code and recommends that "Interlibrary loan is a service that should be publicized and provided to all members of the library's clientele."[5]

Both the National Code and the Model Code stress the responsibilities of libraries to provide for the ordinary, recurring needs of their own clientele through building their own collections. Both codes also stress the importance of using local, state, and then regional resources before requesting material outside these areas. Even libraries in states such as Virginia, where there is no formal statewide code, are traditionally more liberal with in-state lending policies, voluntarily providing material on

loan, and in some cases photocopies, without charge.

In keeping with the tradition that resource sharing best takes place at the lowest possible level, some Virginia libraries have formed local or regional affiliations to improve interlibrary cooperation, including interlibrary loan. Sixteen public, academic, and special libraries in the Lynchburg area are members of the Lynchburg Area Library Cooperative. This group of libraries publishes a yearly resource directory with interlibrary loan policy information, a printed union listed of serials, and a microfiche union list of some of the holdings of six member libraries.

Twelve academic institutions in the Tidewater area are members of the Tidewater Consortium for Continuing Higher Education. Member libraries contribute to a microfiche union list of library holdings and a delivery system for materials sent on interlibrary loan is provided through Purolator, Inc., vans.

The Richmond Academic Library Cooperative is a group of seven libraries from the greater Richmond area. The members exchange periodical holdings lists, offer free reciprocal photocopying, publish a newsletter, and participate in a shuttle system that links the libraries via delivery van.

The Metropolitan Washington Council of Governments (COG), through its Library Council, functions as a cooperative for public, academic, special, and federal libraries in Northern Virginia, Maryland, and the District of Columbia. Members of the COG Interlibrary Loan Task Force meet every two months to discuss policies and problems related to resource sharing in the area. Cooperative activities include reciprocal borrowing agreements for library users, the Library Express delivery system operated by IGE, Inc., under contract to COG, sponsorship of training opportunities for library staff, and publication of directories, reports and union lists.

This brief summary of local and regional cooperatives is not intended as a complete list. It is a summary of how some Virginia libraries are cooperating in a beneficial and cost-effective manner.

Virginia's academic libraries are the most active users of interlibrary loan in-state, according to available statistics. Eighty university, college, and community college libraries in Virginia reported over 64,000 in-state interlibrary loan transactions in fiscal 1978-79 Interlibrary loans provided to Virginia libraries totaled 42,387 and loans received from Virginia libraries totaled 22,068. The most active libraries are listed below.

INTRASTATE INTERLIBRARY LOAN TRANSACTIONS, 1978-79[6]

	Provided to Va. Libraries	Received from Va. Libraries	Total
University of Virginia Main Campus	13,969	1,570	15,539
Virginia Commonwealth University	12,640	2,836	15,476
VPI & SU	6,167	1,275	7,442
Old Dominion University	2,210	2,481	4,691
Eastern Virginia Medical School	1,271	1,936	3,207
College of William and Mary	1,861	1,222	3,083
James Madison University	710	1,612	2,322
George Mason University	621	1,269	1,890

It is apparent that Virginia academic libraries as a group lend more in-state than they borrow. In addition, this in-state lending represents an increase over the previous year, from 59.38 percent to 66.25 percent of total interlibrary lending activities.[7] As the State Council for Higher Education commented, "This rise in intrastate lending is indicative of the spirit of cooperation which exists among Virginia's academic libraries in sharing their resources and illustrates the interdependence of the individual collections in proving service to the citizens of the Commonwealth."[8]

Public libraries in Virginia also engage in interlibrary loan, although on a smaller scale. Ninety-one Virginia public libraries at the regional, county, city, and town levels reported over 32,000 interlibrary loan transactions in fiscal 1978-79. Interlibrary loans provided to other libraries totaled 7,708, and loans received from other libraries totaled 24,868. Virginia public libraries borrow more than they lend on interlibrary loan on a ratio of better than three to one. The most active public libraries are listed below.

INTERLIBRARY LOAN TRANSACTIONS, 1978-79[9]

	Provided to Other Libraries	Recevied from Other Libraries	Total
Fairfax County	2,938	1,050	3,988
Prince William County	226	1,709	1,935
Roanoke Public	82	1,709	1,791
Virginia Beach	54	1,720	1,774
Hampton (Charles H. Taylor Mem.)	17	1,554	1,571
Arlington County	258	1,175	1,433
Waynesboro	123	1,126	1,249
Wythe-Grayson Regional Library	197	955	1,152

Interlibrary loan borrowing and lending patterns are determined in part by the ease of identifying the holdings of other libraries. Forty-two academic, public, and special libraries in Virginia (including the State Library) are members of OCLC, Inc. (formerly the Ohio College Library Center). OCLC operates an on-line computer network used by over 2,200 libraries across the United States, Canada, and other countries. The OCLC on-line union catalog contains information on several million books and identifies the libraries that own them.

The major academic libraries in Virginia, including the busiest interlibrary loan participants, are members of this network and have at least part of their holdings in the data base. Only four public libraries in Virginia are members of OCLC: Richmond City, Henrico County, Alexandria, and Arlington. All four are relatively recent members and therefore have only a small percentage of their holdings included in the on-line union catalog.

A study has shown that inclusion of a library's holdings in the OCLC, Inc., data base will lead to increased interlibrary lending since the library's holdings are more accessible.[10] Conversely, it is apparent that interlibrary borrowing activities will be hindered by a library's lack of access to the holidngs of other libraries. Without certain knowledge of the holdings of another library, the librarian is reduced to guessing which library might own a book.

The State Library's role in developing and aiding public libraries in Virginia expanded in the 1950's and 1960's under the stimulus of federal library programs and funding. As the number of public libraries in Virginia increased, so did the demand for the interlibrary loan services provided by the State Library. The changes in the patterns of interlibrary service in Virginia were substantial during this period, and a survey report by the Arthur D. Little Company in 1968 recommended changes in State Library operations. The report stated that "a network of library services is definitely in order with the State Library acting as a switching station, a locator of materials and a high level general resource library."[11]

The State Library, long known as a research library for the study of early English history, Virginiana, literature, and genealogy, was urged to expand both its role and the scope of its collection in the face of increasing demand from public libraries. For the past thirteen year the Virginia State Library has been working to make the resources of Virginia libraries more accessible so that they can be shared in the most efficient ways possible.

In 1968, in accordance with the Little Report's recommendation, a TWX network of public and academic libraries in Virginia was established. The network, financed by the State Library through federal and state aid, was to facilitate interlibrary cooperation, including interlibrary loans and interlibrary loan referrals. The public library component of the TWX network was later replaced by toll-free telephone lines to the State Library for use in requesting reference assistance, interlibrary loans, and interlibrary loan referrals. The remaining academic library members of the TWX network primarily use TWX for interlibrary loan.[12]

In 1974 the Library Advisory Committee of the State Council of Higher Education for Virginia began studying ways to increase cooperation among Virginia's academic libraries. The Virginia Plan for Academic Library Cooperation, published by the State Council in 1977, called for the establishment of a state-wide referral center for interlibrary loan in Virginia, to be administered by the State Library.

As the Plan stated, "When citations for and locations of needed materials can be verified from reliable sources, requests should be made directly from the borrowing library to the nearest resource library. Unverified requests and/or those for unlocated materials should be referred to the VSL Referral Center which would verify citations and channel requests to resource libraries on an equitable basis."[13]

The Interlibrary Loan Section of the State Library was established in 1977 to function as the state-wide referral center called for in the Virginia Plan. A staff of four (one Librarian, two library assistants, and one clerk-typist) was hired for the Section, and

a separate toll-free telephone line was installed so that in-state libraries with urgent requests could contact the center. The establishment of the Referral Center improved service to all types of libraries in Virginia, with particular emphasis on helping the smaller libraries which did not own the necessary sources to verify and locate material requested on interlibrary loan.

In 1978 and Interlibrary Loan Manual was compiled and a series of workshops was conducted across the State to assist staff members of Virginia libraries in proper interlibrary loan procedures and to explain the operation of the Referral Center. Approximately 650 copies of the Manual were distributed and several hundred library staff members from all types of libraries attended the workshops. The Manual and the workshops have promoted more efficient interlibrary loan procedures among Virginia libraries. As a result, the sharing of Virginia library resources increased.

The Virginia State Library receives about 20,000 interlibrary loan requests annually. The majority are from Virginia public libraries. The requests arrive by mail, telephone, TWX, and computer and are first checked against the State Library's catalog. If the State Library does not own the item requested, and the borrowing library wishes to pursue the request further, the staff of the Interlibrary Loan Section attempts to locate libraries that own the material. This information is then reported back to the requested library, which then initiates a direct request to the library which owns the material.

The Virginia State Library plays a unique role among Virginia libraries, as shown below.

INTERLIBRARY LOAN TRANSACTIONS, 1978-79 [14]

Provided to Other Libraries	Received from Other Libraries	Total
20,325	289	20,614

The firgures include 4,288 requests which the State Library referred beyond its own collection, by providing locations to the borrowing library.

Although the referral activities of the State Library predate the existence of OCLC and its computerized holdings, the on-line union catalog has rapidly become the primary source of information used by the State Library in its capacity as a referral center.

In March, 1979 Virginia libraries received the first issued of CAVALIR (CAtalog of VirginiA LIbraryResources), consisting of 616 microfiche listing 315,000 books and periodicals owned by 22 Virginia academic libraries. The catalog was prepared from

the contributions of these libraries to the OCLC data base and included the symbols of the libraries that owned the books. The latest issue of CAVALIR has grown to almost 1,600 fiche in subject, title, and name (author) arrangement, and it contains almost 800,000 titles held by 35 academic and public libraries in Virginia.

The production and distribution of CAVALIR has made the holdings of major Virginia libraries directly accessible to any library by use of a simple, inexpensive microfiche reader. The implications for interlibrary loan are substantial. It is apparent that CAVALIR has contributed to the growing demand for interlibrary loan among Virginia libraries, especially smaller libraries, which now have more direct access than ever before to the collections of the larger Virginia libraries.

The first issue of CAVALIR (Mrach 1979) contained only academic library holdings, but the data base used to produce CAVALIR has now been expanded to include some public library holdings. Richmond Public Library, Henrico County, Alexandria Public, and Arlington County Public, have subsequently joined SOLINET and their contributions will now be included in CAVALIR. Virginia Beach Public Library was also included, even though it is not a SOLINET member. The State Library is sponsoring card-catalog conversion projects for nine public libraries whose holidngs will be added to the data base used to produce CAVALIR. These libraries are Blue Ridge Regional, Chesapeake Public, Chesterfield County, Jefferson-Madison Regional, Lonesome Pine Regional, Norfolk Public, Portsmouth Public,and Charles H. Taylor Memorial (Hampton). More libraries are expected to be added in 1981.

Distribution of CAVALIR had an immediate impact on interlibrary loan patterns in Virginia. Many smaller libraries that had relied heavily on the State Library's Referral Center now had the information to locate holding libraries and send requests directly to them, thus further decentralizing interlibrary loan activities in Virginia. With the availability of CAVALIR, demand for the services of the State Library's referral center moderated but still showed an increase from fiscal 1979-80 over the previous year. Statewide figures for 1979-80 are not yet available but it appears that overall interlibrary loan traffic has increased since CAVALIR first appeared.

The OCLC Interlibrary Loan Subsystem, which became operational in March, 1979, is a library-to-library, on-line communication system which enables libraries to send interlibrary loan requests and responses over OCLC terminals. The Subsystem includes a referral feature that sends the request, in turn, to any five OCLC member libraries selected by the borrower. The Subsystem quickly proved to be a superior method of transmitting interlibrary loan requests. Consequently, TWX usage in-state declined, while costs for using it increased. Since all members of the TWX network have access to the OCLC ILL subsystem the TWX network is being discontinued at the end of fiscal 1980-81.

The subsystem lends itself to use by the State Library for referral. Under existing procedures, the State Library reports back to libraries requesting locations with the names of libraries that own the material. The requesting library must then send a new request, by mail, to the lending library. With the OCLC ILL subsystem, the State Library can send a request on-line to as many as five holding libraries in turn, instructing them to send the book directly to the original requesting library. The State Library must update its computer record of the transaction, but the book goes directly from lending library to borrowing library and back again. Only one request, from the borrowing library to the State Library, is then necessary.

The State Library has been conducting a trail of direct interlibrary loan referrals via OCLC since May, 1980. From May to December the State Library referred 230 requests in this manner, with a success rate of 93 percent. These referrals took the place of 433 separate requests, since the average request went to more than one library before it was filled. Despite this fact, the average reqeust was answered in about four days, compared to the much longer time required to send multiple requests by mail.[15] Few problems have been encountered, and in fact this service is now being offered by other state libraries. The trial is being conducted with six participating libraries and has proven to be popular as well as successful. The trial will also indicate the staff and equipment required to offer the service statewide.

The availability of an ever-growing CAVALIR has to a great extent achieved one of the original goals of the State Library's interlibrary loan referral center, namely, making the resources of Virginia's libraries more accessible to all citizens. The referral center will continue to provide Virginia locations not on the CAVALIR data base as well as out-of-state locations, none of which are on the CAVALIR data base.

The possibilities of direct referral offer an opportunity for Virginia libraries to have quick, efficient referral of their requests for materials not on CAVALIR, including those held out-of-state. The State Library could then serve as a clearinghouse and switching center for out-of-state interlibrary loan referrals. The State Library located 4,571 items in 1979-80.[16] It is apparent that there is a continuing demand for the services of the interlibrary loan Referral Center.

In contrast to Virginia's decentralized, largely voluntary system, some other states have established formal, centralized or regional, interlibrary loan networks.

The New York State Interlibrary Loan Network (NYSILL) was established in 1967. The network, which covers the state and includes libraries of various types and sizes, is headquartered in the New York State Library. Interlibrary loan requests are normally sent from the local library to one of nine reference and research library resources system, each serving a particular geographic area. If unfilled, the requests then

go to the headquarters, where they are filled or referred to one of 12 libraries under contract to the state to serve as resource libraries. [17]

The Illinois Library and Information Network (ILLINET) is a multitype, statewide cooperative library network coordinated by the Illinois State Library. Like NYSILL, ILLINET is a hierarchical structure, but with less centralization. Interlibrary loan requests that are unfilled at the local level go to a larger library designated and funded to serve that geographic area. If still unfilled, the request may go to one of four "Research and Reference Centers," including the Illinois State Library, and then possibly to one of three "Special Resource Centers."[18]

The Florida Library Information Network (FLIN) is a state-wide interlibrary cooperative network. The State Library of Florida serves as an interlibrary loan clearinghouse for 480 libraries of all types and handles a heavy volume of 75,000 requests annually. Under present policy, requests from all FLIN participants go directly to the State Library of Florida. If the State Library cannot fill the request from its own collection, it is then forwarded to one of four public libraries designated and funded to serve as Resource Centers. If the request remains unfilled, the State Library may refer it to one or more of the ten university libraries in the Academic Network. If the material is not available from one of these, the State Library may attempt to obtain it out-of-state.[19]

The State Library of Florida is linked to all 14 of the designated resource libraries by teletype and computer system and actually refers the requests directly to these libraries, not reporting back with locations as the Virginia State Library does in most cases.

A recent study of FLIN revealed some of the strengths and weaknesses of such a centralized system. Two of the major strengths reported were "access to the resources of other Florida libraries and presence of an organized network."[20] The two factors would seem to be closely related, Florida libraries do not have to rely on the good will of libraries that own needed material, the very presence of an organized network is a guarantee of some degree of access. Resource libraries benefit from the network by virtue of their compensation by the State Library of Florida to serve in that capacity.

The corresponding weakness of a centralized, highly structured interlibrary loan network is also present in the Florida experience, i.e., "slow and inconsistent response time for materials requested through the Florida Library Information Network." [21] Many members of FLIN, in fact, bypass the network and request materials directly if they know that a particular library owns the item.

Another problem common to centralized, structured, interlibrary loan networks is the cost involved, particularly in compensating resource libraries for participating in such a network. Another potential problem is inconsistent performance of these resources libraries.

Some statewide interlibrary loan networks have moved to decentralize in recent years or are considering doing so. Florida, for example, is seeking to encourage greater use of its existing microfiche union catalog and encouraging OCLC member libraries to use the ILL subsystem to send requests. Both concepts are closer to the Virginia experience, where the CAVALIR catalog is in widespread use and the OCLC member libraries for the most part are using the subsystem to send ILL requests without central or regional control.

However, there are definite limits to voluntary, decentralized ILL borrowing. As one observer stated, "Since then [1917] American libraries have been involved in a systematic but unstructured program for the borrowing and lending of resources and later the exchange of photocopies, on a voluntary and essentially free basis without any central coordinating structure. The interlibrary loan system has been remarkably effective but it is beginning to show signs of strain as larger libraries, which have always been net lenders, are increasingly unable to participate without financial return as the total demand for the lending of materials increases."[22]

Although CAVALIR has spread the burden of interlibrary loan to some of the smaller libraries in Virginia that previously did not lend very much, this has created problems for those smaller libraries, some privately funded, which are short of staff and do not have flexible budgets. Since the bulk of the CAVALIR libraries are academic, there is also the question of whether interlibrary loan should be for research only or for items of recreation and general interest, such as are typically requested by public libraries.

The continuing inclusion of public libraries in the CAVALIR data base will alleviate the latter problem in time as public libraries will be better able to borrow from one another. The problem of increased overall traffic will continue to strain the voluntary system and cause problems, however, as resource sharing can only become more crucial to libraries.

Much good has resulted from the cooperation of libraries in the manner suggested by Samuel Green over 100 years ago. The challenge facing librarians and policy makers now is to ensure that interlibrary loan continues as a mutually agreeable, cost-effective method of sharing increasingly scarce library resources for the benefit of all citizens.

FOOTNOTES

1. Samuel Green, "The Lending of Books to One Another by Libraries," Library Journal 1 (September 30, 1876): 15.

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3. "National Interlibrary Loan Code, 1980," RQ 20 (Fall 1980): 29.

4. "Model Interlibrary Loan Code for Regional, State, Local, or Other Special Groups of Libraries," RQ 20 (Fall 1980): 26.

5. Ibid.

6. State Council of Higher Education for Virginia, Academic Libraries in Virginia, 1978-79 (Richmond, State Council, 1980), pp. 20, 40.

7. Ibid., p. 8.

8. Ibid.

9. Virginia State Library, Library Development Branch, Statistics of Virginia Public Libraries and Institutional Libraries, 1978-79 (Richmond, Virginia State Library, 1980), pp. 11, 21.

10. Frederick G. Kilgour, "Interlibrary Loans On-Line," Library Journal 104 (February 15, 1979): 463.

11. Arthur D. Little Co. Report, quoted in Thomas J. Hehman, Interlibrary Loan Manual (Richmond, Virginia State Library, 1978) p. 3.

12. Thomas J. Hehman, Interlibrary Loan Manual, (Richmond, Virginia State Library , 1978) p. 3.

13. State Council of Higher Education, Library Advisory Committee, Virginia Plan for Academic Library Cooperation, (Richmond, State Council of Higher Education, 1977), p 9-10.

14. Virginia State Library, Interlibrary Loan Section, "Annual Report 1978-79,". (typewritten), p. 3.

15. Unpublished statistics.

16. Virginia State Library, Interlibrary Loan Section, "Annual Report 1979-80," (typewritten), p.5.

17. William Katz, Introduction to Reference Work, vol. 2: Reference Services and Reference Processes (New York: McGraw-Hill, 1978), p. 116.

18. Ibid.

19. Laurie S. Linsley, Florida Interlibrary Loan Improvement Project: 1980, (Orlando, University of Central Florida, 1980), pp.1-2.

20. Ibid., p. 66

21. Ibid.

22. Stevens, "Library Networks," p. 409.

STAFF DEVELOPMENT

Ida R. Patton

If staff development programs are to be effective they must be fluid, with libraries reflecting changes in society and corresponding patron needs. The demand for information has increased in recent years and libraries are attempting to deal with this in a number of ways. Advanced technology, alternative delivery systems, and outreach programs, to name a few, are areas in which library personnel need new knowledge or updated skills.

Needs and Barriers

A statewide needs assessment for all types of libraries has not been conducted for several years; however, library organizations and groups determine needs in a variety of ways. In addition to the State Library, the consortia for continuing education, the Virginia Library Association and its six regions, Virginia Educational Media Association, Virginia chapter of the Special Libraries Association, and other groups all contribute to the process of assessing needs and planning programs to meet those needs. An example of this is the questionnaire the State Library sent to all public library personnel in 1980. The response revealed that automation, public relations, reference, children's services, and personnel were the training subjects most needed. Subsequent programs on these topics have been conducted by the State Library or grants have been made to individuals to attend workshops sponsored by other organizations. Evaluation forms provide another opportunity for participants to indicate areas for which they need additional training.

It is difficult to evaluate local staff development in public libraries. Some libraries have well-organized programs, with in-service training and other activities as an integral part of library operations and the budget, and in other libraries it is non-existent. The role of the State Library has been to supplement the one and to work with and provide some assistance for the other.

As is true of many programs, there are existing barriers. The two most often identified are lack of funds and lack of sufficient personnel to permit release time. It does not appear that there are immediate answers to these constraints.

Fellowship Program

A major step in statewide staff development was taken in 1957 when the Virginia State Library began a program to help alleviate the shortage of professionally

trained personnel in public libraries. During this same year a request was made and subsequently granted by the Governor for the use of appropriations to the State Library for the purpose of training librarians, archivists, and historians.

Federal and state funds were set aside, upon request of the locality, to be used for training purposes under the direct administration of the State Library Board. These funds were paid to individuals who were sponsored by a public library, who had been accepted for enrollment in a library school accredited by the American Library Association, and who had positions awaiting them at the sponsoring library. It is interesting to note that Virginia was the first state to set up such a program with the use of state and federal aid funds.

The program was expanded in 1965 to allow greater participation of public libraries through the use of general federal funds budgeted for educational purposes. Libraries were no longer limited to the use of their grants-in-aid to sponsor applicants to the progam.

Contractual agreements served the three types of fellowship aid, i.e., state funds, grants-in-aid, and general federal aid. The candidate agreed to serve in a full-time professional position in the sponsoring library for two years immediately following the receipt of the library school degree.

It was evident by the mid-1970s that the demand for librarians had lessened considerably. This can be attributed to the large number of people who responded to the nationwide publicity on the shortage of librarians and who enrolled in library schools. The State LibraryBoard, at its meeting of April 28, 1975, decided to discontinue the fellowship program. Libraries could continue, however, to use a portion of their grants-in-aid to send qualified individuals to accredited library schools.

During the 18 years of the program, 129 fellowships were awarded, 113 participants received degrees, 16 dropped out of school and repaid the funds, and 15 did not fulfill the contract and repaid all or a portion of the funds.

LSCA Title I Continuing Education Grants

The decision to suspend the fellowship program signified a change in direction for staff development. It was recognized that a primary need existed to update the training and skills of practicing librarians and other library personnel so that they could better meet the demands of their jobs. A continuing process of education was needed to keep up with the rapid changes occurring in the field of library and information science.

In july 1975 a separate fund of $36,000 was set up for continuing education grants. A committee of two public librarians and three members of the State Library staff was established to draw up procedures and criteria.

The program is open to persons working full time in state-aided public libraries and in institutional libraries eligible for LSCA Title I funds. In addition, library board members are eligible to apply.

Institutes, seminars, workshops and courses which are sponsored by nationally recognized groups or institutions provide a wide range of programs on a multitude of subjects. These funds are used by the State Library to conduct programs of general interest and in subject specialities. The amont of money available for the program has increased over the years. The budget for the current year is $48,000.

The appeal of this program is borne out by the response. During the past five years library personnel attended one or more of 215 different continuing education activities, with a total participation of 920. Most of the public and institutional libraries have had at least one person represented at a program during this period.

Cooperative Staff Development

Another facet of State Library's continuing education program comes from LSCA Title III and matching state funds for cooperative programs. Set up in 1976, this program expands the training opportunity to personnel working in all types of libraries.

An advisory committee plans workshops and institutes - usually two each year. The committee is structured so that all types of libraries are represented: public, school, academic (both public and private), institutional, and special. In addition, there is a representative of library education and the Virginia Library Association. Past programs have included program budgeting, automation, copyright, grantsmanship, cataloging, statistical data and alternatives to the card catalog.

The committee strives to plan programs that are excellent in both content and presentation, on topics that are based on expressed needs of library personnel. It has as one of its objectives to offer Continuing EducationUnits (CEUs). The State Library established criteria for CEUs and began awarding them in 1980.

Funds are available only for conducting the workshops and paying commmittee expenses. The current budget is $8,000.

The Council of Higher Education has established six continuing education regions in the state. In each region there is a consortium whose membership is made up of state-supported and private institutions. The consortia identify continuing education needs within their areas and develop programs to meet the needs. In some of the consortia public, special, and school libraries work with the academic libraries in planning and developing continuing education programs.

Other

To supplement the formal programs for staff development, the State Library has a small but growing collection of books, videotapes, and audiotapes that are available

for loan to individuals and groups. These are useful for independent study and to supplement local inservice training programs. An effort is made to purchase autiotapes of major meetings of the American Library Association annual conference for the benefit of the large number of interested people who are unable to attend. Videotapes cover a wide range of subjects on services and functions of libraries including children's services, oral history, setting up a vertical file, outreach programs, and providing better access for the handicapped.

COG

The Metropolitan Washington Council of Governments provides a framework for staff development on a regional basis. Libraries have a place in the organizational structure of COG through the Librarians' Technical Committee. This is an interjurisdictional, intertype library cooperative whose goal is to extend the pool of information resources available and to develop more effective mechanisms for delivering this information to every individual regardless of location within the region. The membership is made up of 10 public, 2 school systems, 114 special, 50 federal and 27 academic libraries.

One of the goals of the Committee is "to develop and evaluate a continuing education curriculum for library personnel designed to encourage cooperation and communication among libraries and between librarians and those in other disciplines."

In implementing this goal, the Committee conducts a number of activities related to staff development: needs assessments ; workshops; a jobline; and a master calendar of library meetings in the area.

The State Library supports this program with financial assistance.

CLENE

In 1974 the National Commission on Libraries and Information Science conducted public hearings and one of the messages heard was that continuing education is a prime national need. The Commission followed up with a study which resulted in a proposal for a nationwide Network and Exchange. This recommendation was brought to reality in 1975.

Virgina was one of fifteen states that pledged initial support to CLENE and continues as a supporting member.

The organization has four basic programs: (1) the continual assessment of needs and problem definitions; (2) information acquisition and exchange; (3) program and resource development; and (4) communications and delivery to increase the awareness level for continuing education in general and for specific programs.

As a member the State Library has the opportunity to serve on CLENE committees and task forces. All CLENE publications - newsletters, reports on research and ed-

ucational projects, and listings of continuing education programs held throughout the nation - are available to all library personnel through the State Library.

Governor's Conference

The importance of staff development to citizens as well as librarians was made evident at the Governor's Conference on Library and Information Services held in March 1979. Six of the forty-seven resolutions dealt directly with personnel and continuing education. Several others included staff development as part of their implementation. The complete texts of the resolutions are given in the appendix.

The resolutions were forwarded to appropriate local, state, and national persons. In addition, groups such as the Library Development Committee and the Legislative Committee of the Virginia Library Association as well as State Library personnel are studying them and developing plans for implementation.

During the two years following the Governor's Conference progress has been made on several of the resolutions. Some of the accomplishments are:

(1) Programs related to the special problems and needs of the handicapped are being held.
(2) The State Library continues to expand its continuing education program. A coordinator to administer the program will be employed in the spring of 1981.
(3) The State Library is offering continuing education units in recognition of training activities.
(4) Library science courses from accredited library schools are being offered in several locations in the state.
(5) The State Library is working with the Virginia Division of Volunteerism toward the development of a volunteer training program. Two workshops have been held.

(6) Training needs of paraprofessional and non-professional support personnel is receiving greater recognition. A grant has been made to the Consortium for Continuing Higher Education in Northern Virginia to conduct a pilot project for paraprofessionals in all types of libraries.

The White House Conference

The concerns surrounding staff development transcend local, regional, and state involvement. Delegates to the White House Conference on Library and Information Services addressed several of the issues and approved the following resoultions:

Training, Research and Development (Excerpt)

That a high priority be assigned to an expanded national and local research, development and demonstration program;

That a research arm and a Clearing house for Library and Information Services be established within the United States Department of Education for this purpose, and, that as a part of the research and development program, federal funds be provided to support professional library education programs in providing entering and practicing librarians and information specialists with training in new areas which are projected as a function of library information services with special attention to assessing present and future training needs in the areas of community outreach programming, community literacy programming, non-print resources services, the information sciences, services to the handicapped, adult education, institutional services, public relations, research competencies, services to special cultural groups, and resource management.

Continuing Education for Librarians (Excerpt)

That funds be made available for the retraining and updating of those imparting library skills;

That the continuing education of librarians be coordinated through library schools, library associations, and State agencies.

Specialist Staff for State Library Leadership and Development (Excerpt)

That the White House Conference on Library and Information Services urges each state to provide specialists in adult, young adult, and children's services to assist libraries in developing needed services programs.

Training and Continuing Education/Staff Development (Excerpt)

That there should be immediate restoration and increased federal funding for library education, research, continuing education, and demonstration projects in order to:

(1) recruit minorities and students with a specialized background that are under-represented in the library and information science profession;

(2) upgrade facilities, curricula, and faculty competencies to prepare graduates to cope with the changing information needs of society; and

(3) provide continuing education for current librarians.

By resolution an Ad Hoc Committee was formed to plan, implement, and follow up resolutions from the conference. The group met in September 1980, renamed itself the Committee of 114, and began the work of analyzing the resolutions and putting them in a format for implementation.

Conclusion

Continuing education for library personnel was neglected or minimized for many years. Its importance is now being recognized and efforts are being made by local, state and national groups and organizations to improve the quality of library service through training activities.

The State Library has assumed increasing responsiblity in promoting staff development, based on the needs determined by local libraries. The Long-Range Program for Library Development 1978 - 1983 has as one of the objectives "To develop continuing education programs which will help library personnel to improve services in all types of libraries." Existing programs are steps in the right direction but they are reaching only a small proportion of people who need to have opportunities to continue their education.

VIRGINIA GOVERNOR'S CONFERENCE ON LIBRARY AND INFORMATION SERVICES

MARCH 28 30 31, 1979

RESOLUTIONS ADOPTED BY THE DELEGATES ON MARCH 31

EDUCATION, TRAINING, AND MANPOWER

Continuing Education

No. 5

Whereas, There is no required program of continuing education for all librarians;

Whereas, There is a general lack of articulation between the public, special, academic, and school libraries;

Whereas, There is no state plan for library education; and

Whereas, This delegation perceives that many librarians lack sensitivity and awareness of the special needs of some of their users such as those of the physically and mentally handicapped users of library services;

Resolved, That requirements for promotion of library personnel be consistent with training opportunities;

Resolved, That regional continuing education workshops be conducted by an appropriate body for library personnel;

Resolved, That the State Council of Higher Education in cooperation with the State Library be charged with investigating the training and education needs of librarians and others in the information field, that plans be made for delivery systems which meet those needs of para-professionals in all types of libraries, and that the planning group evaluate existing programs to determine the ability to create field-based consortia capable of delivering the educational programs required by those in library and information services;

Resolved, That the Virginia Library Association report of the Needs Assessment Study of Continuing Education be publicized;

Resolved, That an appropriate body institute a statewide staff development program to assist localities with continuing education efforts;

Resolved, That librarians be provided with continuing education opportunities designed to assist librarians in becoming more sensitive to the special problems and needs of patrons such as those of physically and mentally handicapped library users;

Resolved, That the State Library should continue and expand its continuing education programs to all librarians;

Resolved, That the content of continuing education programs for librarians consider the topics: (a) legal obligations and available services to the handicapped, (b) the use of new technology, (c) management procedures, (d) copyright requirements; and

Resolved, That a liaison office be established to offer recognition of library certifications and to recommend standards and curricula for continuing education among the appropriate state library agencies.

Equal Rights in Employment

No. 6 Whereas, Unfair library personnel promotional practices exist throughout the library profession among males and females, varying age groups, the disabled, and minorities; and

Whereas, Few females, members of certain age groups, the disabled, and minorities are found in administrative positions, resulting in inequality of prestige and salary;

Resolved, That an appropriate state body collect statistics on the above groups relative to salary, positions held, age, ethnic background;

Resolved, That the results of the data collection be disseminated publicly;

Resolved, That the persons referred to above, through continuing education opportunities be made aware of their potential; and

Resolved, That an appropriate body review library administrative policies which tend to generate the disparities found among the above groups.

Non-Professional Personnel

No. 7 Whereas, There is no coordinated state training program for para-professional library and media personnel;

Whereas, There is a need for specification of the role and training of para-professional and non-professional support staff; and

Whereas, There is a need for non-professionals to work in school, public, academic, and special libraries;

Resolved, That trained para-professionals can supplement services of professional librarians and that the Virginia Library Association should undertake a study to define categories of para-professional service in all kinds of libraries and the training requirements for each;

Resolved, That the State of Virginia grant recognition and/or certification to the Library Media Technical Assistant as one of the support positions to the professional librarian and list the title and educational requirements of the position within the State Classification System with sufficient explanatory publicity;

Resolved, That the Commonwealth of Virginia develop and implement a basic inservice program for non-professionals and make such a program available in each locality and that training records be maintained at the state level with a certificate being issued to each trainee; and

Resolved, That the employment of para-professionals not be used to replace professional librarians.

Graduate Program of Study

No. 8 Whereas, This delegation believes that an accredited multi-purpose Graduate School, Center, or Institute for Studies in Library Service and Information Studies may be needed in the Commonwealth of Virginia;

Resolved, That the State Council of Higher Education should conduct a comprehensive feasibility study to determine whether such a school should be established;

Resolved, That such a school or program should be conceptualized in the broadest terms to include a comprehensive program embracing the expanding information professional sector; considering the need for research in Library and Information Studies; and also taking into consideration the acute need for continuing education in their field; and

Resolved, That if the study reveals such a need, that the State Council of Higher Education should take appropriate steps to implant such a program in this Commonwealth.

Volunteers

No. 9 Whereas, There is no statewide program for training volunteer workers for libraries;

Resolved, That standards and classifications for trained volunteers be established in the Commonwealth of Virginia;

Resolved, That the State Office of Volunteerism and the State Library work cooperatively toward the development of a volunteer training program for Virginia;

Resolved, That all types of libraries be encouraged to make use of volunteers to their fullest potential;

Resolved, That positions and training be provided volunteers which will include job descriptions and a commitment to terms and/or duration of time; and

Resolved, That packaged programs (TV cassettes and other media) be planned, developed, and exchanged under the leadership of the State Library for training library assistants and volunteers.

Certification

No. 10 Whereas, The validity of the State Board for the Certification of Librarians test is questionable; and

Whereas, Only school librarians are required to be re-certified by the State Board of Education;

Resolved, That the State Board for the Certification of Librarians evaluate the current certification test to determine its validity in terms of relevancy and difficulty; and

Resolved, That all librarians, i.e., school, academic, special, public, be required to be re-certified by the Commonwealth of Virginia resulting in continuous education of librarians and continuous development and upgrading of skills by librarians.

COOPERATIVE BUYING

Sandra L. Picchi
Sarah W. Crews

Cooperative buying has been defined as ". . . a program among a fixed group of libraries to acquire all available materials within a defined scope and to eliminate unnecessary duplication through agreement to share those materials".[1] According to Patrick M. O'Brien, director of the Central Library, Chicago Public Library, three factors, must be present for this definition to be valid. First, each library must be able to identify all of the holdings of all of the libraries within the fixed group. Second, all identifiable materials must be accessible to all cooperating libraries, either through interlibrary loan, photocopy, or facsimile transmission, and/or through on-site access. Finally, requests for materials not currently owned in cooperating libraries, but within the defined scope, can be directed to a library or libraries assigned the responsiblity for collecting in that subject area.[2]

Cooperative buying among libraries seems to be a logical alternative to the impossible goal of attempting to acquire everything.[3] With the recent increases in publishing in all parts of the world, no library can hope to have the funds, staff, time, and space to acquire, organize, store, and to make available the enormous amount of research material that is currently being published.[4] The statistical estimate of the information explosion differs from survey to survey, but all concur on one point: There is too much material available for even the most ambitious expert to handle in a hundred lifetimes of reading, viewing, and listening.[5]

According to William A. Katz in his book *COLLECTION DEVELOPMENT: THE SELECTION OF MATERIALS FOR LIBRARIES,* information growth can be measured as follows: (1) The amount of raw information available (in any form) doubles every ten to fifteen years. (2) Some 500,000 books are published throughout the world each year, more than 100,000 of them in English. (3) There are 65,000 to 100,000 periodicals available at any given time, but the number doubles when one is concerned with all titles published since the seventeenth century.[6]

At the same time, double digit inflation, dollar devaluation, and decreasing budgets have made it increasingly difficult for libraries to maintain previous levels of service. The prices of hardcover books, as reported by Noreen Alldridge and Hugh Atkinson, showed an 11.5 per cent increase from 1977 to 1978, rising from $18.03 per volume in 1977 to $20.10 per volume in 1978.[7] The price of the average hardcover volume published inthe United States in 1979, according to the 1979 preliminary figures in *PUBLISHERS WEEKLY*, was $22.80, representing an increase of 13.4 percent over those for 1978.[8]

The U.S. periodical price index for 1979, compiled by Norman Brown, showed a 10.1 per cent increase in the average subscription price of an American periodical over the 1978 average subscription price. American periodical price increases over a 10 year period from 1970 to 1979 averaged 13.4 per cent per annum.

In past years, libraries have attempted to serve their clientele from their own collections as much as possible, utilizing interlibrary loan as a supplement. However, decreased purchasing power is now causing many libraries to view a "collection" as being not only the materials possessed by the individual library, but the materials owned by other institutions as well.[9]

It is becoming increasingly clear that the long-term solution to the chronic fiscal, staff, and space problems besetting libraries lies in developing new and more realistic goals, including more selective acquisition policies designed to meet the actual needs of particular institutions and their library users. The traditional emphasis on developing large research collections must be shifted toward developing excellent local working collections and truly effective means of gaining access to needed research materials wherever they may be.[10]

Cooperative acquisition efforts, usually as a part of larger cooperative programs, have been taking place between libraries of various types and sizes for a number of years. Some programs failed, some served their time and were superseded by more effective programs, and others are continuing today. Some forms of cooperative acquisitions are specialized agreements, cooperative buying programs, centralized buying programs, exchange arrangements, photocopying of important research materials, and shared storage centers.[11]

Among the successful models of effective cooperative acquisitions and resource sharing already in existence is the Center for Research Libraries in Chicago. The Center for Research Libraries is a non-profit libraries' library with over 100 members and a collection of over 3,000,000 volumes of research materials.[12] Founded in 1949 by ten Midwestern university libraries, the Center serves two main functions: to house and service little-used research materials for member libraries, and to purchase selected materials for cooperative use. Its acquisition funds are based chiefly on current membership assessments and federal government grants.[13]

Although membership fees are high, individual member libraries feel that the principal value of such an organization as the Center for Research Libraries is to relieve them of the responsibility for collecting a variety of fringe materials, expensive to acquire, seldom needed, and filling valuable space, but perhaps important when wanted.[14]

Another successful storage type facility is the government funded British Lending Library Division (BLL) which began in 1962. In contrast with the Center for Research Libraries which deals with storing and sharing of little-used and expensive research

materials, the BLL deals with the storage, copying, and rapid delivery of the most useful and frequently requested materials. Statistics for 1975 show the BLL receiving 44,000 periodicals and 60,000 monographs a year in all subjects and languages, but its main strength is largely in science and technology.

On a much smaller scale, the Hampshire Inter-Library Center in Amherst, Massachusetts, established in 1961, serves purposes similar to those of the Center for Research Libraries. The participating institutions are Amherst, Mount Holyoke, and Smith Colleges, the University of Massachusetts, and the Forbes Library in Northampton. The Hampshire Center was set up to purchase and store jointly owned research materials. Its primary collecting interests are current and retrospective serial files and large, expensive sets.[15] In 1978, member libraries decided to coordinate their activities through a cooperative automated circulation and aquisition system.[16]

One of the most prominent developments in resource sharing occurred in 1979 with the aggressive membership drive of the Research Libraries Group, now headquartered at Stanford University. At least ten university libraries had joined Columbia, New York Public Library, Stanford, and Yale in RLG membership by the end of the year. Although much public attention has been directed toward RLIN, (Research Libraries Information Network) the RLG's on-line bibliographic component, the four primary programs of the Research Libraries Goup include shared access to materials, collection management and development, and preservation of research materials.[17] Included in the collection management and development program is a cooperative acquisition program which"attempts to coordinate the acquisition and cancellation of serials and the aquisition of expensive items by member libraries."[18] This includes a system of polling all members before a serial is purchased to assure that a low-demand title is not already in the collections of another library, or on order, and the building of a serials data base. Users of each RLG library have the right to use on site the collections of the other member libraries. It has been predicted that "eventually, the separate collections of the member libraries will be viewed by users in the various libraries as a single large distributed collection to which they can gain efficient access via online searching and the rapid delivery of requested items, as well as by personal visits."[19]

Among recent developments in resource sharing is a propsed plan for the creation of a National Periodicals Center. In the fall of 1977, the Library of Congress commissioned a study by the Council on Library Resources on the establishment of a facility to provide national access to periodical literature. In August 1978, the Council on Library Resources released its study which proposes a centralized collection of 36,000 current titles which might eventually reach 60,000; a finding tool listing titles and holdings of the Center and referral libraries; and delivery services including a back-issue service, an

article sales service, and/or a source for the full text of material published in synoptic form. In order to make most of the estimated 200,000 currently published periodical titles accessible, the NPC would provide service through a system of referral libraries. All requests would be routed through the NPC and would require payment of a fee.[20]

The report also recommends that a National Library Agency be established to govern the Center as well as coordinate its operations with the development of other national programs of bibliographic control, communications networks, and preservation of materials. It is expected that the National Periodicals Center will serve all types of libraries as well as consortia and bibliographic networks. The NPC report is being discussed within the library community and is expected to generate legislation to implement such a facility.[21]

Of current interest is the effect of online bibliographic networks, such as OCLC, on collection development and resource sharing processes.[22] In terms of selection of materials, networks are important because they can develop sophisticated bibliographic methods of organizing, storing, and retrieving information to assist in interlibrary loan, and almost instant checks on who has what and, therefore help answer the question: Need we purchase? Although more than 2000 libraries now have some such services, the system is still in its infancy, and the majority of libraries remain outside the network.[23] "Mostly restricted to academic libraries, these services have hardly made a dent in public and special libraries. Moreover, the products offered are surprisingly unrefined and, for the most part, oriented narrowly toward cataloging support and reference services."[24]

It is predicted, however, that technology will one day link most of the nation's libraries by online machine-readable data bases and give book selectors at one library immediate information about the selection decisions of librarians at another. This immediate access will make it possible to discover quickly who has what and much easier to decide whether, for example, to buy an extremely expensive, esoteric encyclopedia.[25] Also, new automated systems capable of monitoring the actual use of materials in a given library would assist libraries participating in cooperative acquisition programs in determining who will buy what type of material, which periodical subscriptions will be cancelled or transferred, and where materials will be located. After discovering the location of a book in another library, and aware of the probable use, the problem of delivery of the book will still need to be solved.

New systems are rapidly becoming available that promise to allow more libraries to automate their acquisition procedures. These new systems fall into two catagories - those available through the bibliographic utilities such as OCLC, Inc. and RLIN (Research Libraries Information Network) and those available through vendors such as Baker and Taylor and Brodart.[26]

OCLC, the largest of the online bibliographic services, is currently evaluating its Acquisitions Subsystems. The Acquisition Subsystem is linked to the more familiar cataloging subsystem and will provide acquisition and fund information on-line. Orders generated by the system will be mailed directly to vendors and the order record will remain on the system for noting and eventual receipt and payment transactions. While OCLC has not released any firm information on pricing, it is expected that each order will cost approximately $1.50.[27] The capability of viewing acquisition lists of other libraries within a region, or by type of library would be of value to libraries involved in cooperative acquisitions. Forty-two academic, public and special libraries in Virginia are members of OCLC, Inc.

Linked to the topics of collection development and resource sharing is the display of bibliographic data for library patrons. Online access may be ideal, but online access can also be quite expensive, depending on what systems and what telecommunications approach are used. An alternative should be available, such as microform catalogs and union lists for part or all of a machine-readable bibliographic data base. For example, Berkeley & Stanford will have a combined serials list totaling 280,000 records. This list will probably be produced annually on microfiche and distributed throughout the two campuses. The book catalog used by the Washington Library Network achieves the same goal of displaying holdings of more than one library, as do book and microform catalogs produced by various public and special library systems throughout the country.[28]

One looks in vain in published library literature to find comprehensive cost-effectiveness studies of joint acquisition programs or interlibrary borrowing. Joe W. Kraus has written:

"Although most of the cooperative enterprises of libraries are announced and described in some detail in library periodicals, there are few evaluative reports that give a clear account of the success of a venture and the factors leading to success or failure. Unsuccessful ones, in fact, simply seem to fade away. Costs of a cooperative effort are particularly hard to ascertain, in part because many expenses are absorbed in the participating libraries, and in part because standard reporting procedures have generally not yet been developed."[29]

A typical large academic or public library spends 70-75 per cent of its budget for personnel and benefits, 20-25 per cent for books and journals, and only 5 per cent for other purposes. Thus, the amont of cost savings that can be made through resource sharing in any one year is necessarily only a small percentage of the book and journal budget. With these costs constantly rising, the savings will be largely absorbed by inflation.[30] If the trend toward declining library budgetary support continues the pressures to reduce expenditures will increase.

The importance of resource sharing mechanisms, and particularly the most cost-effective ones-the centralized storage center, such as the Center for Research Libraries - is not so much that they will save funds that can be reallocated tc other purposes, but that they will permit libraries to continue to have access to a large body of materials which can no longer be afforded, spending the diminishing funds on the materiais that are needed and used most. In sum, effective cooperative buying and sharing will help ease the pain that will accompany the scaling-down of commitments and expectations libraries face in the years ahead.[31]

In surveying the literature, it has been difficult to find the factors present in any one cooperative acquisition plan which proved its success or failure. Some of the needed components of cooperative acquisition plans that have been stressed are as follows:

- Collection development policy statements of individual libraries, up-to-date, and available to other libraries
- Surveys of subject specializations, strengths, weaknesses, overlappings and gaps, and the use of materials in library collections
- Union lists of serials and monographs in hardcopy and microform, as well as on-line
- Binding agreements between libraries for the cooperative acquisition, interlibrary lending, and rapid and efficient delivery of materials and the means of monitoring these systems.
- Recognition of the needs of patrons of a particular library, and the acceptance of some duplication of often used materials
- Realistic incentives for large libraries to share in the receiving along with the sharing of resources, by equitable division of responsibility for cooperative acquisitions and additional funding.

FOOTNOTES

1. Patrick M. O'Brien, "Cooperative Collecting and Sharing," Illinois Libraries 60 no. 2 (Febraury 1978): 110.

2. Ibid., p. 111.

3. Robert B. Downs, "Future Prospects of Library Acquisitions," Library Trends 18 (January, 1970): 416.

4. Guy Sylvestre, "A Co-operative Acquisition Plan for Canada," Canadian Library Journal 26 pt. 2 (November-December 1969): 434.

5. William A. Katz, Collection Development: the Selection of Materials for Libraries (New York: Holt, Rinehart and Winston, 1980), p. 52.

6. Ibid.

7. American Library Association, The ALA Yearbook: a Review of Library Events 1979 (Chicago: American Library Association, 1980) p. 119.

8. Chandler B. Grannis, "1979 Title Output and Average Prices; Preliminary Figures," Publishers Weekly 217 (February 22, 1980): 57.

9. Susan K. Martin, Librrary Networks, 1978-79 (White Plains: Knowledge Industry Publications, 1978) p. 9

10. Richard De Gennaro, "Austerity, Technology, and Resource Sharing: Research Libraries Face the Future," Library Journal 100 pt. 2 (May 15, 1975): 919-920.

11. Joseph Becker, editor, Proceedings of the Conference on Interlibrary Communications and Information Networks (Chicago: American Library Association, 1971) p. 75.

12. De Gennaro, "Austerity Technology, and Resource Sharing," p. 920.

13. Downs, "Future Prospects of Library Acquisitions," pp.415-416.

14. Ibid.

15. Ibid.

16. American Library Association, The ALA Yearbook: a Review of Library Events 1978 (Chicago: American Library Association, 1979) p. 85.

17. Rose Mary Magrill, "Collection Development and Preservation in 1979," Library Resources and Technical Services 24 (Summer 1980): 255.

18. American Library Association, The ALA Yearbook: a Review of Library Events 1979, p. 118.

19. Richard De Gennaro, "Research Libraries Enter the Information Age," Library Journal 104 (November 15, 1979): 2409.

20. American Library Association, The ALA Yearbook: a Review of Library Events 1978, p. 85.

21. Ibid.

22. Susan K. Martin, Library Networks, 1981-82 (White Plains: Knowledge Industry Publications, 1981) p. 94.

23. Katz, Collection Development, p. 45.

24. "Networks," ALA Yearbook (Chicago: American Library Association, 1978), p. 202.

25. Katz, Collection Development, p. 45.

26. William Gray Potter, "Automated Acquisitions in Academic Libraries," Illinois Libraries 62 no. 7 (September 1980): 638.

27. Ibid.

28. Martin, Library Networks, 1978-79, p. 94

29. David C. Weber, "A Century of Cooperative Programs Among Academic Libraries," College & Research Libraries 37 no 3 (May 1976): 211.

30. Richard De Gennaro, "Copyright, Resource Sharing, and Hard Times: a View from the Field," American Libraries 8(September 1977): 434.

31. Ibid., p. 435.

DELIVERY SYSTEMS

William R. Chamberlain

The demand for a state-wide delivery system has been around for a long time. The argument for such a system is based on the claim that the postal service is (1) costly, (2) slow, and (3) prone to lose or damage materials.

The need derives from the large amount of material sent from one library to another and the need to get it to its user quickly and safely. It does not involve materials received by a library from sources such as publishers. It pertains only to items borrowed, such as motion picture films, books, microfilm, journals, and photocopies. During 1979/80, 35,000 films and 39,192 books were borrowed by college, university and public libraries. At an approximate cost of .85 per film and .25 per book (library rate) each way, the charge to libraries is over $79,000 per annum. It is probably that the United States Postal Service is going to raise the charges for library rate postage by 32 percent for 1981. This would raise the cost to over $104,000 to libraries.

Statistics available from film usage show that a parcel sent from Richmond can take seven to ten days to reach sourthwestern and northern Virginia and as long to return. The reason for this is that parcels for the former are routed via North Carolina, and for the latter are routed via Maryland. To anywhere else in Virginia, parcels from Richmond average three to five days in transit.

Statistics supplied by the Interlibrary Loan Department of the State Library, show that over the last three years, a total of fifteen (15) books have been lost or damaged by the postal service out of a total of more than 27,000 items sent. This is a loss ratio of .000185 percent per annum. When it is considered that each item makes two postal journeys, this loss ratio is extremely small.

Several areas of Virginia have local delivery systems—notably, northern Virginia, Metropolitan Richmond, and the Tidewater area. Northern Virginia, through the Metropolitan Washington Council of Gevernments, participates in the use of a commercial courier service which covers twelve libraries in the Maryland, District of Columbia, and northern Virginia areas. In the Richmond area, the seven members of the Academic Library Consortium are utilizing a library van for shuttle service, and the two public libraries of Richmond and Henrico use their library vans to connect with the State Library . In the Tidewater area there is delivery service between the academic libraries south of the James River, and another service for the academic libraries on the Lower Peninsula.

In the event that rapid delivery is demanded, the commercial courier services or the commerical bus services are utilized. If the need is urgent, but not imperative, then the postal service's special delivery is used. This costs an additional $3.00 for items under ten pounds and takes up to two days to reach its destination.

Possible alternatives to the present practices include (1) direct delivery to all libraries, (2) direct delivery from a regional center to a regional center, and (3) the establishment of local delivery systems.

(1) The possibility and cost of a statewide delivery system was tested in February 1979. A copy of that report is appended. The basic conclusions of that report were that statewide delivery is feasible, it can guarantee delivery anywhere within 24 hours, and it would cost (in 1979) between four and five times as much as the postal service. The matters addressed in the test were solely concerned with procedures with the film departments of the State Library and the local libraries, and did not touch on the delivery of books.

(2) Directed delivery from regional center to regional center was one of the considerations of the above report. Under this concept, all libraries within a region would ship material to a designated central library, where it would be sorted and forwarded to another appropriate regional center for further distribution to requesting libraries. Since bulk delivery reduces cost per item, this could be cheaper than direct delivery.

(3) In order to achieve (2), it is imperative that a local delivery system be established. This has been done effectively in northern Virgnia. It would not be difficult to expand the system around Richmond and in the Tidewater area. Under such a system the delivery of all materials to all libraries (branches as well as main libraries) could be fast, and efficient.

In comparing these delivery systems with that of the U.S. Postal Service, it is obvious that number one (1) is far more costly but very much faster. It is doubful that there would be any difference in the number lost. For number two (2) (region to region) the cost may be less, but there would be some loss in speed. It would add two handling stages at the regional centers which, apart from slowing the process, would increase the chance of mistakes and loss. For number three (3), local systems could be cost competitive with the mails in areas having dense population, many libraries, and limited mileage. In areas such as Southside and southwestern Virginia, distances between libraries may make this concept impractical.

A state-owned and operated delivery system would give the greatest flexibility, but it is doubful that it could be operated as cheaply as a commercial system, because library materials would comprise only a part of the greater commercial volume of the latter. The state could reimbure libraries for the cost of transporting material by whatever system. This could be done either by a prorated grant or by specific reimbursement.

Under commercial ownership, either the state or localities could contract for service on a yearly basis. With the volume involved and through the bid process, a reasonable rate could be obtained.

At the moment all libraries in Virginia practice either local or user-fee financing. Under these methods either the library absorbs the cost of mailing, or it charges the client the cost of mailing. This is an area of dissatisfaction, especially among the net-lender libraries, many of whom feel they should be reimbursed for both the cost of mailing and the cost of handling the request. Any study of state-financing of interloan and delivery systems must address these points.

APPENDIX

Report on the Statewide Trial of a Delivery System using the Purolator Courier Corporation, February 2 - 13, 1979.

The need to experiment and possibly develop a statewide delivery system, arose from a concern with the present usage of the postal service. With the prospect of a state computer network in the future, which would make knowledge of the locations of books and materials more accessible, it was advisable to investigate ways of getting the materials to the people. Many complaints have been received about the postal service, both for the delivery of films and interlibrary-loaned books. These complaints centered around two factors: - (1) the length of time to deliver (e.g. the average delivery time in Virginia for materials sent by the State Library is seven days), and (2) the uncertainty of the length of the time (e.g. sometimes a film mailed out would take three days, the next time ten days, to the same place). There is also a common, but statistically unproven, concept of high loss or damage rate by the postal service.

With these factors in mind, it was decided to investigate a delivery system which would (1) provide fast service preferably within 24 hours; (2) maintain a dependable length of delivery time, excluding weather or catastrophies; (3) give a high safety factor against loss or damage; (4) provide insurance against loss or damage (5) be economically feasible.

Several courier systems were investigated, but only one, Purolator Courier Corporation, could meet all the above. The next closest was the United Parcel Service but this company would not promise delivery to all libraries.

In order to make the test effective the following factors were considered:

(1) Sufficient information had to be available to act as a control for comparison

(2) A certainty of sufficient volume during the test period.

(3) The certainty of materials to be sent out by, and received back at the State Library.

(4) Deadlines for delivery to determine speed and reliability

(5) Records to determine loss or damage.

It was felt that to meet these criteria, the best service to use for the test was the film service. The State Library has accurate records of the volume and cost of the service by mail, it could choose a week when a normal flow of bookings was in effect, and there are deadlines to be met for the showing of the films. It was decided that films to be shown during the week of February 4 through 10 would be selected. This meant that films to be sent from the State Library would be picked up during February 2 through 8, and the returns would be picked up February 5 through 13.

In order to foresee any problems that might arise, if such a delivery system should be permanently implemented, it was also decided that the existing rules for the film service would be rigidly adhered to. In particular the rule stating (Period of Loan) "Films will be shipped to arrive the day before showing and must be mailed to the Virginia State Library the day following, unless other arrangements have been made," would be watched carefully.

After discussions with representatives of the Purolator Courier Corporation, a selection of 67 libraries was chosen to participate in the test. Some libraries were eliminated due to uncertainty of opening hours, or the probability of the couriers delivery before or after closing hours. In the event of a future for the system, these libraries would be provided with a special collection box.

The test proceeded as planned. It was informative in that, in spite of a severe snow-storm that closed the State Library and many other libraries 7 February, all the films were delivered in time for showing. There were some problems in the returning of the films, which will be discussed in the evaluation section, but again all films were returned to the State Library. There was no damage or loss during the test.

EVALUATION

All libraries participating in the test were provided with a questionnaire to be filled out. This questionnaire was designed to obtain information and reactions from the libraries. Unfortunately, it was not completed correctly in many cases, and several libraries commented that they could not "evaluate" the service on such a little (to them) use of it. The ability to evaluate by the libraries was not required, since it was realized beforehand that to provide each library with the opportunity, would mean at least a six-month test, which would not have been feasible. The failure to respond to some questions might influence some of the findings.

From the questionnaire, Part A, provided the State Library with information to evaluate the response. Part B, was the comparative data on mail versus Purolator. The only valuable data from this section is that 37 libraries (out of 67) have to carry the returned films to the post office, whereas all could be picked up by Purolator. In Part C, at least 90 percent were satisfied with the delivery times of both systems, while 50 percent would like Saturday delivery and one library would like Sunday delivery.

Part D, dealt with the volume of materials sent by libraries. This was not information to be used in evaluation, but rather as a guide to the amount that might use a delivery system. It is only necessary to note here that the volume is considerable, but varies with the size of the library.

Part E, was a difficult section from which to compile any useful figures. However the majority responding rated Purolator consistently better on delivery speed, reliability, delivery and pick-up, damage and potential for Statewide delivery. The only factor that was rated consistently worse, was the patron's convenience for returning films, which will be commented on in another section.

Part F, dealt with the ranking of the importance of delivery system features. The respondents were asked to rate in importance from "one" to "nine", with "one" being most important. After eliminating those with no answers, those who used the same value for several features, and after assigning a value of "eight" to features where the respondent had not placed a value, the following figures were achieved giving the average score.

1.	Increased availability of films	2.13
2.	Reliable on-time delivery	3.15
3.	Overnight delivery	3.92
4.	door-to-door service	4.32
5.	cost	5.18
6.	Potential for Statewide service	5.58
7.	insurance and claim	6.18
8.	status quo procedures	7.22

From this it can be deduced that there is a definite interest in improving the quality of the delivery service, especially if there is as a result the increased availability of films.

Under general comments, several libraries complained over the amount of paper work involved, and this indeed was a problem at the State Library. Most of this could be solved through the use of preprinted forms. The State Library and the Purolator Courier Company were aware of this solution, but felt it would not be economical to provide for the test.

By far the most common complaint from the libraries was that having the film arrive the day before the showing and having to return it the day after, was most inconvenient to them. Several libraries state that they needed the film for five days in spite of having only booked it for one. To repeat the rule mentioned earlier "Films will be shipped to arrive the day before showing, and must be mailed to the Virginia State Library the day following, unless other arrangements have been made." This rule allows for a library to request longer time to allow for such things as showing the films in several branches provided that "arrangements have been made". It is obvious from the comments that libraries are ignoring this rule. It is interesting that, while there is considerable

concern over receiving the film in time in order to show it at a publicized showing, there is no concern over returning it on time in order that the next library may receive it.

For the State Library, the evaluation must consider two factors:

(1) for delivery of materials within the State and (2) the effect on services from the Library.

(1) A comparison of delivery times indicates that Purolator is very much faster and at least as reliable as the mail service. It has good insurance coverage. The times for delivery showed that all parcels sent reached their distination within 18 hours, except where weather had closed the libraries. Against this, mail service for interlibrary loan books can take as long as seven days, while for films a schedule has been worked out allowing for three, seven, or ten days. Since for the majority of the year weather is not a factor, and since it influences both types of service equally, it is obvious from these figures that the advantage is with the delivery service.

Cost however must be taken into consideration. For the sending of one single unit from one place to another, the delivery system is from four to five times as expensive as the mail. The minimum charge for the delivery system is $3.25 for the first 15 pounds. Where the delivery system starts to become more cost competitive is when multiple units are sent from one location to another, since the minimum charge is levied on the first unit and the remainder are charged a flat rate per pound. This rate does not apply where one location sends multiple units to many locations, only from one place to one place.

(2) For Interlibrary loan, if pre-printed forms are used, the only change in service would be much speedier delivery.

For the Film Department, it is another picture entirely. The use of pre-printed forms might not necessitate any extra staff. However with a possible turn-around time for the films of eight days (one day pack and label, one day deliver, one day return, one day to inspect and clean, and three to four days at the library) as against our average 14-21 days at present, the capability is for doubling or tripling the current circulation using only the films at present in stock. This raises two problems: (1) the extisting staff could not handle the increase and (2) there is some doubt as to whether the films could withstand the extra use, or whether a policy of replacing or adding more duplicates would have to be instituted.

In addition, there could well be a serious problem if there was any delay caused by the borrowing library's failure to return the film promptly, since this would affect the next library. At the moment there is a built in buffer by allowing an average of ten days for mail, although there are still problems. To allow more time than the suggested eight days would decrease the probable benefits from the service.

CONCLUSIONS

1. Mail Service. It is obvious both from these responses and from prior complaints, that there is considerable unhappiness with the mail service. However it is still the cheapest method.
2. Door-to-Door. The Purolator Courier Corporation has proved in this experiment that door-to-door service will work with a much faster delivery. Is it worth paying four times as much for it ?
3. Film Department. Faster service could be obtained and the availability of the films at least doubled through door-to-door service. But with this type of service will come the necessity for more staff to handle the increased circulation, probably more films because of increased wear, and definitely higher cost.
4. A possible alternative. It would be feasible to establish local delivery areas covering all parts of Virginia. Examples of this are the C.O.G. delivery system using Purolator and serving Northern Virginia and the shuttle van serving the Universities and colleges in the Richmond area. Once local systems are established, intersystem delivery would be done in bulk. For example: if both the systems mentioned were involved, all materials to go from one system to the other would be collected in one library and delivered to one library.

This would reduce the overall cost to where a delivery system would be competitive with mail service. A factor that would have to be worked out, would be who would pay what costs.

CENTRALIZED PROCESSING

Linda A. Morrissett
Mary F. Guthrie

A centralized processing center is an agency which orders, receives, catalogs and physically prepares library materials for a group of libraries. A processing center may be run by a state library, a regional library system, or a library contracted to perform technical processing. There are also commercial vendors which provide centralized processing. The centralized processing center will be most efficient and successful if member libraries have similar acquisitions, cataloging, and processing needs.[1] Cooperative cataloging, prepared by independent libraries cooperating voluntarily, is to some extent replacing centralized cataloging ventures.

The first plans for eliminating costly duplication of effort with a cooperative cataloging project were developed by mid-nineteeth century librarians and resulted in the decision to create a national union catalog. The first centralized processing project was the Library of Congress catalog card distribution service, which was available at first only to larger libraries. As Library of Congress cataloging became accepted as the standard with the distribution of the National Union Catalog, LC cards gained wide use by all types of libraries.[2]

In the 1950s and 1960s libraries enjoyed a great surge of development resulting from federal funds provided by a series of federal legislation: Library Services Act (1956), Elementary and Secondary Education Act, Library Services and Construction Act, and the Higher Education Act of 1965. This increased funding allowed the development of library systems and cooperative projects such as centralized processing.[3] Indeed, the maximum emphasis on processing centers occurred in the 1960s.

The OCLC (Online Computer Library Center, Incorporated) is a computerized cataloging project which has evolved from these cooperative cataloging ventures. Not just a cataloging service, OCLC has the capability to provide bibliographic information for acquisitions, interlibrary loan, and reference.

The chief reason for having a centralized processing center is the elimination of duplication of effort, but there are many more advantages that accrue from central processing: A central agency can have a staff with greater expertise in subjects, languages, bibliographic tools, and technical processing than each member library could provide for itself. A stronger collection of bibliographic tools can be built in the central agency. Smaller libraries with limited staff and funds can have better quality cataloging than they could provide for themselves. The member libraries staff can be freed to provide more extensive

or new services to their patrons. Due to the large volume of book orders, central processing centers usually can get larger discounts from book jobbers. Overall, centralized processing can lower processing costs.

Foremost among the disadvantages of centralized processing is the necessity that one standard product must be agreed upon by all member libraries. The more variations there are in the processing, the greater the cost. Often, library administrators feel that the quality of cataloging is below their library's standards. Some librarians spend too much costly time revising and altering cards because they consider the product inadequate for their library. Time lags create frequent complaints about central processing centers. The centers tend to be more costly than jobbers. Federal or state funding is needed, especially in the beginning when a large capital outlay is needed; and true cooperation is essential. Rivalry and distrust are destructive forces which erode the success of any centralized processing project.

The growth of computerized library services has undercut the popularity and advantages of central processing centers. Along with the development of OCLC, regional networks such as SOLINET (Southeastern Library Network) have been formed. Larger libraries, academic libraries, and library systems are best served by these networks. At the same time, increasing costs, dissatisfaction with the product, and competition from commercial vendors have contributed to the demise of numerous processing centers.[4]

The Florida State Library Book Processing Center opened in 1963 chiefly to serve small public libraries. The venture was successful and in 1975 Florida's Book Processing Center joined SOLINET. SOLINET membership increased efficiency and allowed customized cataloging for each library at a reasonable cost.[5] In June 1977 the Book Processing Center closed because strong county and regional library systems had developed autonomous technical processing services. The competition of the lower-costing commercial vendors also contributed to the demise of the center.[6]

Rhode Island had a statewide processing center which included over one hundred libraries of all types: public, school, academic and special.[7] Lack of adequate funding led to closing the center a few years after its opening, leaving small libraries to fend for themselves.[8]

The Colorado Academic Libraries Book Processing Center operated on a trial basis January 1 - June 30, 1969, using facilities at the University of Colorado. The results of this test present the most likely evidence of the inadequacies of a book processing center for academic libraries. Small discounts and large time lags were the norm in dealing with jobbers. Catalogers lacked subject expertise necessary for handling certain highly specialized collections. Book processing requirements, were different in each library. Errors were emphasized by the member libraries as they revised each item, often completely retyping the cards sets. Rivalry was high among the members, undermining the concept of cooperation.[9] Soon after the study was completed CALBPC was scrapped.

The current state of affairs of centralized processing centers is more difficult to ascertain due to the lack of references in the library literature. There are still several centers in existence, among which are the Illinois Library Materials Processing Center, Louisiana State Library Processing Center, and North Carolina State Library Processing Center.

The Illinois State Library recently sponsored a Study of the Illinois Library Materials Processing Center (ILMPC). A survey of other processing centers conducted for this study produced the following information:

> The mean average number of libraries using these 26 centers in the past year was 70; their mean average operating budget was $225,412, and the average number of items processed was 55,832, mostly for public libraries. About 80 percent of these items were ordered through the center; most "items" were hard cover books with mass market paperbacks second, but each of eight other types of materials was processed by four or more of these centers. Of eight respondents, only about half their income came from fees, and half from grants and subsidies. Twenty-one centers use a computer data base, usually OCLC. Between them these centers offer a wide variety of services and a variety of processing options and 16 of the 26 do not promote their services. The average fee charged by these centers is $1.17, but the mean actual cost per item is estimated at $3.82. The average time between initiation of the order by the library and receipt of the item at the center is 33 days for books; and from receipt of the book to shipment to the library another 14 days. These centers feel that the overall quality of their work is better than that of commercial firms, the speed of service about the same, and the cost higher than that of the commercial firms. Most of these centers intend to seek more business from more and different types of libraries with various new services. Two-thirds of them expect (a) increased competition from commercial firms, (b) increased demand from libraries for processing services, and (c) increased help from computer technology in the next five years.[10]

The ILMPC study concludes the center itself is doing a good job but will have to increase charges and membership to become financially stable, notwithstanding the fact that federal funds provide 50 percent of the center's funding. The data processing also needs improvements to be operable at greatest efficiency and output.

The Louisiana State Library Processing Center, established in 1968, became a SOLINET member in 1978. This move increased output and added the capabilities of COM catalogs, automated interlibrary loan and an automated acquisitions if the system now being tested works out. An additional possible capability could be a joint circulation

system among cooperating libraries based on OCLC tapes. Cards formatted from each library's own cataloging profile are sent directly to each library from OCLC and books are mailed from the center immediately after being cataloged, so that processing is much faster using OCLC.[11]

The North Carolina State Library Processing Center, organized in 1960, is a manual operation, although they do have access to the OCLC data base for cataloging information through State Library terminals. Most of the membership consists of small public libraries. As of July 1, 1981 the fee per volume will be $1.75, and state funding covers the remaining costs of the centers, approximately $95,000 a year. Overall, the center is considered successful.[12]

A review of the literature on centralized processing centers brings out several points that one should be aware of when evaluating them:

1. Federal or state funding is essential, especially in the initial capital outlay. Consistently, processing centers rely upon government subsidy for about 50 percent of their operating costs.
2. Membership should be homogeneous for widest product acceptance. The membership contract should specify technical details of the products in order to eliminate misunderstandings.
3. Small libraries will benefit most from central processing, since larger libraries are joining regional networks. Not only can small libraries not join such a network, but they also often do not have staff capable of good technical processing.
4. The success of a manual center is possible, but use of OCLC should be explored. The extra capabilites such as COM catalogs, centralized acquisitions, and interlibrary loans may far outweigh the added expense of regional network membership.

The Arthur D. Little, Inc. report to the Virginia State Library Board, October, 1968, indentified, "substantial interest in statewide centralized processing" and recommended that the Virginia State Library organize and operate a centralized processing center.[13]

Donald Haynes, then director of library services, conducted a survey of public libraries in Virginia beginning in September 1970, concerning centralized processing. In March 1972 a meeting of librarians interested in centralized processing was hosted by the State Library. The follow-up interest was so slight that the State Library dropped consideration of such a center.[14]

FOOTNOTES

1. "Guidelines for Centralized Technical Services," Library Resources & Technical Services 10 (Spring 1966): 233-234.

2. Doralyn J. Hickey, "The Search for Uniformity in Cataloging: Centralization and Standardization," Library Trends 25 (1976-77): 566-568.

3. Ibid., 568-570.

4. Donald B. Simpson, "Bibliographic Processing Centers," ALA Yearbook, 1978. (Chicago: American Library Association, 1978): 55-57.

5. Glenn Tripplett, "Bureau of Book Processing, the State Library of Florida," Southeastern Librarian 26 (1976) : 230-233.

6. "Florida State Library to Scrap Processing Service," Library Journal 101 (1976): 2418.

7. Helen G. Kurtz, "Centralized Processing - Diversified," Library Journal 95 (1970): 1807-1812.

8. "Closing R.I. Processing Center Will Hurt Small Libraries," Library Journal 10 (1976): 851.

9. Richard M. Dougherty and Joan M. Maier, Centralized Processing for Adacemic Libraries. (Metuchen, N.J.: Scarecrow Press, 1971).

10. The Illinois Library Materials Processing Center: a Study. (Springfield: Illinois State Library, 1980) p. 10-11.

11. Gary Phillips, "The LSL Processing Center in Action," LLA Bulletin 42 (1980): 63-65.

12. Telephone conversation between Mary Guthrie, Head of Cataloging, Virginia State Library and Eunice Drum, Chief of Technical Services, North Carolina State Library, 12 March 1981.

13. Arthur D. Little, Inc. A Public Library Program for the Commonwealth of Virginia; a Report to the Virginia State Library Board. (Cambridge, Mass.: A. D. Little, 1968): 34-36.

14. "Centralized Processing" file in the records of Library Development Branch, Virginia State Library, Richmond, Virginia.

REFERENCE AND REFERRAL CENTERS

Patricia L. Taylor
Carla L. Gregory

The information explosion of the 1960s and 1970s has dramatically changed the traditional concept of a reference department. Vast amounts of information are being produced at a phenomenal rate from new and varied sources. The practicality of obtaining all necessary information for a patron from one or two sources is no longer feasible. This flood of information has caused a re-evaluation of traditional concepts of reference work.

William Katz in Introduction to Reference Work states that one of the duties of a reference librarian is to translate a request into terms that can be met by a given reference source. The concept that Katz expounds is a basic philosophy of reference work. The librarian traditionally has had only the limited resources of his library collection. Metropolitan and academic libraries have their limitations as libraries are faced with increasing demands. A library can no longer afford to collect all material needed by their patrons. Library cooperation and networking is an outgrowth or an attempt to resolve these problems.

Reference sections have been forced to expand their traditional services. On-line catalogs, data base searching, direct referrals, and automated indexing are changing the capabilities of reference services and allowing librarians to retrieve obscure but needed information. The first users of these developments were academic and special libraries. With library cooperation and networking smaller libraries are benefiting from access of this information. Local, regional, statewide, and national networks are permitting increased access to a wide spectrum of information.

In Virginia the Reference Section of the State Library may be contacted by patrons either by personal visit, telephone, or correspondence, or through their local library. The State Library believes that its collection should be an additional reference tool for libraries across the state. At the present time the staff uses traditional resources to locate materials. However, if a title does not circulate the staff will attempt to locate a copy using the Online Computer Library Center (OCLC) network or CAVALIR. This is especially helpful with out-of-state correspondence in the areas of genealogy and local history.

Automated networking activities of the State Library are limited. The Interlibrary Loan Section refers to the Reference Section subject requests which cannot be answered without a detailed search. The staff analyzes the request and attempts to locate answers. If a clearer definition of the request is necessary, the staff will contact the requesting library.

When emergency information is needed and time does not permit the use of the Interlibrary Loan System, the State Library Reference Section has an in-state INWATS line. Immediate access to the reference staff and to the collection is available to any library. Questions that cannot be satisfactorily answered by the collection of a local library, or that are very specific in nature, may be referred through this system. The library contacts the Reference network centers in Virginia. The reference staff researches the question and telephones the answer to the requesting library. Printed matter pertaining to the question is sent by the Interlibrary Loan Section.

At this time the Virginia State Library Reference Section does not have data base searching capabilities. CAVALIR, the microfiche catalog published by the State Library, has a subject index which permits the staff to locate additional titles for their patrons. The microfiche also lists location of titles in Virginia libraries. The OCLC network is of use to the Reference Section in providing out-of-state locations of specific titles. When an on-line catalog for the State Library becomes a reality, subject searching of that data base will be part of the total reference services.

Reference networking in the broadest sense occurs whenever a library contacts another library for assistance. In a regional networking system the local library contacts a large library in the same area. If the patron's needs cannot be satisfied, the request is then forwarded to the next library. The present system in Virginia requires the local library to contact the State Library directly. The Reference librarian upon completion of the research transmits the information to the requesting library by means of interlibrary loan, a telephone call, or a computer link, or any combination of these methods.

The use of the bibliographic utilities in the reference function falls into two catagories---the location of exact titles and search of information by subject headings. The reference librarian must interview the patron to determine his needs. For example, if the patron wishes material on the education of deaf children, the librarian can assist the patron in the use of the library catalog and standard periodical indexes. If these tools fail to supply sufficient information, the librarian can check a statewide union list such as CAVALIR. If the needs are still not satisfied, then an on-line search using the computer data bases can be performed. The specific titles which have been located by the on-line search can be requested by the Interlibrary Loan Section using the OCLC network. If the on-line search produces specific titles, they can be obtained by OCLC and other similar networks.

The search-only data bases are commercially produced by various vendors. Lockheed Information Systems' Dialog, System Development's ORBIT, and the Bibliographic Retrieval Service (BRS) have been the major information retireval systems. These systems are computerized versions of printed indexes of periodicals and magazines. The systems vary in coverage and cost.

Lockheed Information Systems produces Dialog Information and Retrieval Services. Some one hundred data bases are available through this system, including a number of government indexes. ORBIT, which is produced by Systems Development Corporation has many of the same data bases as Dialog but also has some exclusive ones. ORBIT is a close competitor of Dialog. BRS The Bibliographic Retrieval Service, is a smaller operation but does offer the Medical Literature Analysis and Retrieval System (MEDLARS) data base which is produced by the National Library of Medicine. Recently there have been a number of data bases that have been developed and marketed independently of these major vendors. Some academic, public, and special libraries are using these retieval systems as part of their reference services. Their staffs have been trained to conduct the reference interview so that the needs of the patron can be translated for the computer. The search is then performed and a list of relevant material is produced. These searches often involve fees, primarily for computer time. Each library must establish its own policy concerning these fees.

A survey of several other state library agencies was made to investigate the operation of the reference networks. The focus of this survey was to determine which state libraries had developed statewide systems and what types of systems have been implemented.

A common feature was the heavy use of interlibrary lending. The types of libraries which were included varied,but public libraries formed the backbone of the system with academic libraries providing additional service. Another common feature was that each state library developed the network to meet the needs of their state. Usually on-line searching was not done by the reference network but was available on an individual basis at the university libraries.

The differences in the systems also reflect the needs of each state. The Kentucky State Library developed an Extended Reference Department with a state library staff member located at one of six universities. The local librarian would contact the regional center and the center would attempt to answer the request. If the regional center could not answer the question, it would be referred to the Extended Reference Department, and if not satisfactorily answered there, the question would then be sent to the library. The number of regional centers varied greatly from state to state. The New York State Library has sixty-five centers while the Tennessee State Library system has four resource centers. The Tennessee State Library does not act as an information center but contracts for services from the four large public libraries. Most state library agencies are in the initial stages of developing a reference network. Interlibrary loan generates most of the usage of the existing networks. The need for a reference network has developed with the information explosion. The use of on-line searching data bases should be incorporated into the development of a regional and statewide network. The benefit of this network would provide sophisticated services to all sizes and types of libraries.

The future of reference networking is expanding. As libraries complete retrospective conversion projects, additional information will be added to the OCLC data base which will be accessed through that system. On-line catalogs will be accessible by subject as well as by author and title. Other aspects of computers in libraries include community data bases which can be programmed to list local clubs, officers, and members, community activities, government and municipal agencies, etc.

Another aspect of the electronic age is the development of minicomputers for the home. These computers are reasonable in price and give the consumer access to many differenct sources of information. Some librarians are concerned that this technological development will eclipse the information function of the library. Kenneth Dowlin expresses the point of view that "public libraries must include the expansion of access as one of their major priority goals."

Access is the issue, not technology. As the capabilities of a reference network develop, the small library with limited resources, staff and finances can be supplemented through increased use of interlibrary loans. Training librarians in new techniques will enable them to give more effective service. Areas for present and future training with emphasis on computer format should include the reference use of CAVALIR, in-depth reference interviewing techniques, and the development of a standard reference format.

The development of a reference network which incorporates on-line searching of data bases as well as an automated catalog will increase the effectiveness of the librarian and the services offered. The location of information is the primary function of a reference librarian. The computer can assist, organize, and locate the data needed, but the libraraian is the key factor in helping the patron understand and effectively use these new tools of the information revolution.

SUGGESTED VIRGINIA PLAN FOR NETWORKING

William J. Hubbard

In as much as the Virginia data base is in place and growing, one of the major obstacles to networking has been partially overcome. The mechanics of recording and manipulating bibliographic data on-line have been solved, but the entering of libraries' records has just begun. A network is only as strong as its data base, so the first priority for network planning has been, and remains, enlarging the Virginia data base. As it grows, the data base becomes increasingly valuable for locating materials in other libraries. Unfortunately, as the data base grows, the more expensive it becomes to maintain. It requires more on-line storage capacity, more compute power and time to search and process the file, and more microfiche to publish CAVALIR for off-line users. For this, and other reasons, distributed processing as authorized by MASD Directive 81-1 (Appendix 2) appears to be the most likely route to networking.

The following Virginia libraries have, or have signed contracts for, automated systems that could be tied into a distributed network. (See Appendix 3): Virginia Tech, University of Virginia, Chesterfield County, Fairfax County, Old Dominion University, Virginia Commonwealth University, Alexandria, Henrico County, and Prince William County. A number of other Virginia libraries plan to have systems operating within the next few years, so the skeletal structure of a distributed network is taking form. By linking the local data bases, the network would develop and grow as additional libraries are added.

The foundation of a statewide data base is a complete file of bibliographic holdings in standardized (MARC) machine readable format. With the variety of library systems in Virginia and the rapid advances in data processing and communications technology, the only stable and consistent component of a statewide network is the bibliographic data base. The expense of converting these data is considerable. This year's estimated cost of $1.25 per record (equipment, labor, and unit charges) will increase each year. Next year OCLC will increase its unit costs for conversion 200 percent in non-prime time (now 5¢ per record) and The Computer Company will increase its entire rate schedule by 7 percent. The direct labor cost for state employees will increase by more than 9 percent, which will be reflected in the expense of most conversions.

Based upon most recent statistics and today's conversion costs, the best estimate of expense to convert the holdings of Virginia's academic libraries is $7.5 million

and $5.75 million to convert all public libraries in the commonwealth. A recommendation by the Commission that funds be appropriated to support a statewide conversion project would be most beneficial to the development of library networking in Virginia.

APPENDIX 1

HOUSE JOINT RESOLUTION NO. 239

Offered January 16, 1981

Creating the Commission on a State Library Networking System; allocating funds.

Patron–Bagley, R. M.

Referred to the Committee on Rules

WHEREAS, there are 21 regional libraries in the Commonwealth; and

WHEREAS, a strong and viable cooperative library system is an asset and enhances the education and cultural advancement of the citizens; and

WHEREAS, the orderly growth of a cooperative library system should be planned so that it can operate at maximum efficiency and economy and achieve desired benefits; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That there is hereby created the Commission on a State Library Networking System. The Commission shall consist of four members of the House of Delegates and two citizens appointed by the Speaker and two members of the Senate and two citizens to be appointed by the Senate Privileges and Elections Committee. Two of the members appointed from the House of Delegates shall be members of the House Appropriations Committee and one of the members appointed from the Senate shall be a member of the Senate Finance Committee.

The Commission is requested to study the feasibility and desirability of a state library networking system. The study should include, but not be limited to, the techniques of establishing a statewide networking system which would act as an interlibrary loan center for all collections in the network district; maintain and distribute an up-to-date union catalog of books, materials, and periodical holdings in the network district; promote staff and collection development among the members; including the initiation and supervision of cooperative buying systems as desired by the members; keep membership records and collect and disburse any charges related to membership in the network district; develop a delivery system for interlibrary loans; provide centralized acquisitions and processing if desired by the membership; develop a plan for reimbursement for materials interlibrary loaned if that is desired by the network district membership; and develop a plan for cross-district cooperation. The Commission is further requested to study any other matter that would affect and enhance the state library system.

For the expenses of the Commission, there is allocated from the appropriation to the General Assembly the sum of $5,000.

The Commission shall recommend to the 1982 Session of the General Assembly any legislation it deems necessary.

APPENDIX 2

COMMONWEALTH of VIRGINIA

R. W. MILLER
DIRECTOR

Department of Management Analysis and Systems Development

JAMES MONROE BUILDING
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April 16, 1981

Department of Management Analysis and Systems Development
Directive 81-1

SUBJECT: Distributed Data Processing Policy for the Commonwealth of Virginia

EFFECTIVE DATE: April 16, 1981

SUPERSEDES: N/A

REFERENCES: Commonwealth of Virginia Systems Development Standards (1977), and Commonwealth of Virginia Data Processing Procurement Manual (1980)

AUTHORITY: Code of Virginia, Chapter 28, Section 2.1-410, "Duties of Department" (of Management Analysis and Systems Development)

DEFINITION: Distributed Data Processing consists of information processing where a portion of the computing capability and data are located as close to the user as is practical, while at the same time retaining the ability to consolidate and share this information through data communications network facilities with other State agencies.

SCOPE: This Directive is applicable to all State agencies within the Executive Branch of State Government except Institutions of Higher Education.

BACKGROUND: This Directive establishes a Distributed Data-Processing Policy for the Commonwealth of Virginia based on the premise that the State will continue to pursue the benefits and cost effectiveness inherent in the centralization of data-processing hardware and software for State agencies.

Under Virginia Revised Statutes, 1979, Volume 1, Title 2.1, Chapter 28, the Department of Management Analysis and Systems Development (MASD) is to establish policy and provide for cost-effective data processing within the State agencies.

Department of Management Analysis and Systems Development
Directive 81-1 (continued)

In the last ten years, computer technology has changed dramatically. Technological advances have made computers more powerful and significantly decreased the unit cost of processing data. However, while the cost per unit of processing data has steadily decreased, the total costs have steadily increased as a result of the additional volume of data being processed.

As advances in the technology and in the management of information processing continue to occur, opportunities exist for more effective use of data processing in the State. The trend of providing information processing closer to the decision makers of an enterprise could be the most important effect of the advancements in computer technology. This trend has been labeled Distributed Data Processing, or simply Distributed Processing.

Distributed Processing attempts to take advantage of many of the benefits of centralization while lowering communications costs and providing a more responsive, computing environment. MASD will continue to maintain the centralized management control of data processing for the Commonwealth.

The policies contained in this Directive allow for the installation of distributed data processing capabilities where they are considered cost-effective to the Commonwealth, while insuring maximum personnel productivity and cost-effective application growth.

PURPOSE: The purposes are to:

- Allow agency management to assume additional responsibility for the availability, accuracy and validity of data accumulated and processed locally.

- Allow agencies to utilize distributed processing solutions which satisfy end-user needs within the policies and procedures contained in this Directive.

- Provide more efficient utilization of the State computing facilities and networks in the implementation of distributed processing technology for those selected applications which should be distributed.

- Realize reduced application development time.

- Realize improved system responses.

- Reduce source document handling costs.

The Department of Management Analysis and Systems Development shall be responsible for developing the necessary guidelines and procedures as well as reporting requirements to implement these policies, in coordination with the Department of Computer Services and the Department of Telecommunications.

Department of Management Analysis and Systems Development
Directive 81-1 (continued)

POLICIES: To determine whether implementing a Distributed Processing solution is appropriate, the following criteria are to be used:

1) Proposals prepared by State agencies must be functional in nature rather than simply hardware requests. These proposals should be submitted to the Procurement and Contracts Administration Section of MASD in the form of an Agency Procurement Request (APR) in accordance with the provisions of the Commonwealth of Virginia, Data Processing Procurement Manual, (DPPM).

2) The proposal is to be cost-effective. Cost-benefit analyses are required for each application. The analyses are to consider comparable alternative solutions, impact on the requesting agency, comparative operations and communications costs, and reliability, availability, and serviceability considerations as outlined in the DPPM.

3) The proposal must include an impact analysis from the Department of Computer Services. The proposed solution must also be accompanied by an evaluation of the technical adequacy and the cost effectiveness of the approach, evaluation of security and privacy implications, procedures for backup and recovery management of the data to be distributed, and hardware and software or technical support required.

4) The proposed solution must be capable of being integrated into the present Department of Computer Services network and the planned Department of Telecommunications network without modification to the interfaces of the networks.

5) The solution must be compatible with the Agency's and MASD's management directions and plans and be in compliance with MASD's procurement policies.

6) The MASD staff will review each proposal for a distributed processing system as outlined in this Directive and the Data Processing Procurement Manual and will request additional information from the requesting agency and DCS as required.

7) Agencies will be responsible for insuring the compatibility of content and structure of distributed data files with centralized data bases.

DISTRIBUTION: Heads of All State Agencies and Institutions.

Ray Miller

APPENDIX 3

Academic and Public Libraries in Virginia with Automated Systems

Albemarle
- Jefferson-Madison Regional - COM

Alexandria
- Alexandria Public - Solinet, Circulation
- Northern Virginia Community College - Solinet, COM, Circulation

Amherst
- Sweet Briar College - Solinet

Arlington
- Arlington Public - Solinet
- Northern Virginia Community College - Solinet, COM, Circulation

Brunswick
- St. Paul's College - Circulation

Charlottesville
- Jefferson-Madison Regional - COM
- University of Virginia - Solinet, COM

Chesapeake
- Chesapeake Public - COM

Chesterfield
- Chesterfield Public - COM, Circulation

Dickenson
- Lonesome Pine Regional - COM

Fairfax

Fairfax Public - COM, Circulation
George Mason University - Solinet
Northern Virginia Community College - Solinet, COM, Circulation

Franklin

Ferrum College - Solinet

Fredericksburg

Mary Washington College - Solinet

Greene

Jefferson-Madison Regional - COM

Hampton

Charles H. Taylor Public - COM

Hanover

Randolph-Macon College - Solinet

Harrisonburg

Eastern Mennonite College - Solinet
James Madison University - Solinet

Henrico

Henrico Public - Solinet, COM, Circulation
University of Richmond - Solinet

Henry

Blue Ridge Regional - COM

Lee

Lonesome Pine Regional - COM

Lexington

Virginia Military Institute - Solinet
Washington and Lee University - Solinet

Loudoun

Northern Virginia Community College - Solinet, COM, Circulation

Louisa

Jefferson-Madison Regional - COM

Lynchburg

Central Virginia Community College - Circulation

Manassas

Northern Virginia Community College - Solinet, COM, Circulation

Prince William Regional - COM, Circulation

Manassas Park

Prince William Regional - COM, Circulation

Martinsville

Blue Ridge Regional - COM

Montgomery

VPI & SU - Solinet, COM, Circulation

Nelson

Jefferson-Madison Regional - COM

Newport News

Christopher Newport College - Solinet, COM

Norfolk

Eastern Virginia Medical School - Solinet

Norfolk Public - COM

Norfolk State University - Solinet

Old Donimion University - Solinet, COM, Circulation

Norton

Lonesome Pine Regional - COM

Patrick

Blue Ridge Regional - COM

Portsmouth

Portsmouth Public - COM

Prince Edward

Hampden-Sydney College - Solinet

Longwood College - Solinet

Prince William

Northern Virginia Community College - Solinet, COM, Circulation

Prince William Regional - COM, Circulation

Pulaski

New River Community College - Circulation

Radford

Radford University - Solinet, COM

Richmond

Richmond Public - Solinet

Union Theological Seminary - Solinet

Virginia Commonwealth University - Solinet, COM, Circulation

Roanoke

Virginia Western Community College - COM

Roanoke County

Hollins College - Solinet

Rockingham

Bridgewater College - Solinet

Salem

Roanoke College - Solinet

Scott

Lonesome Pine Regional - COM

Staunton

Mary Baldwin College - Solinet

Virginia Beach

CBN University - Solinet, COM

Virginia Beach Public - COM, Solinet

Washington

Emory and Henry College - Solinet

Williamsburg

William and Mary - Solinet

Wise

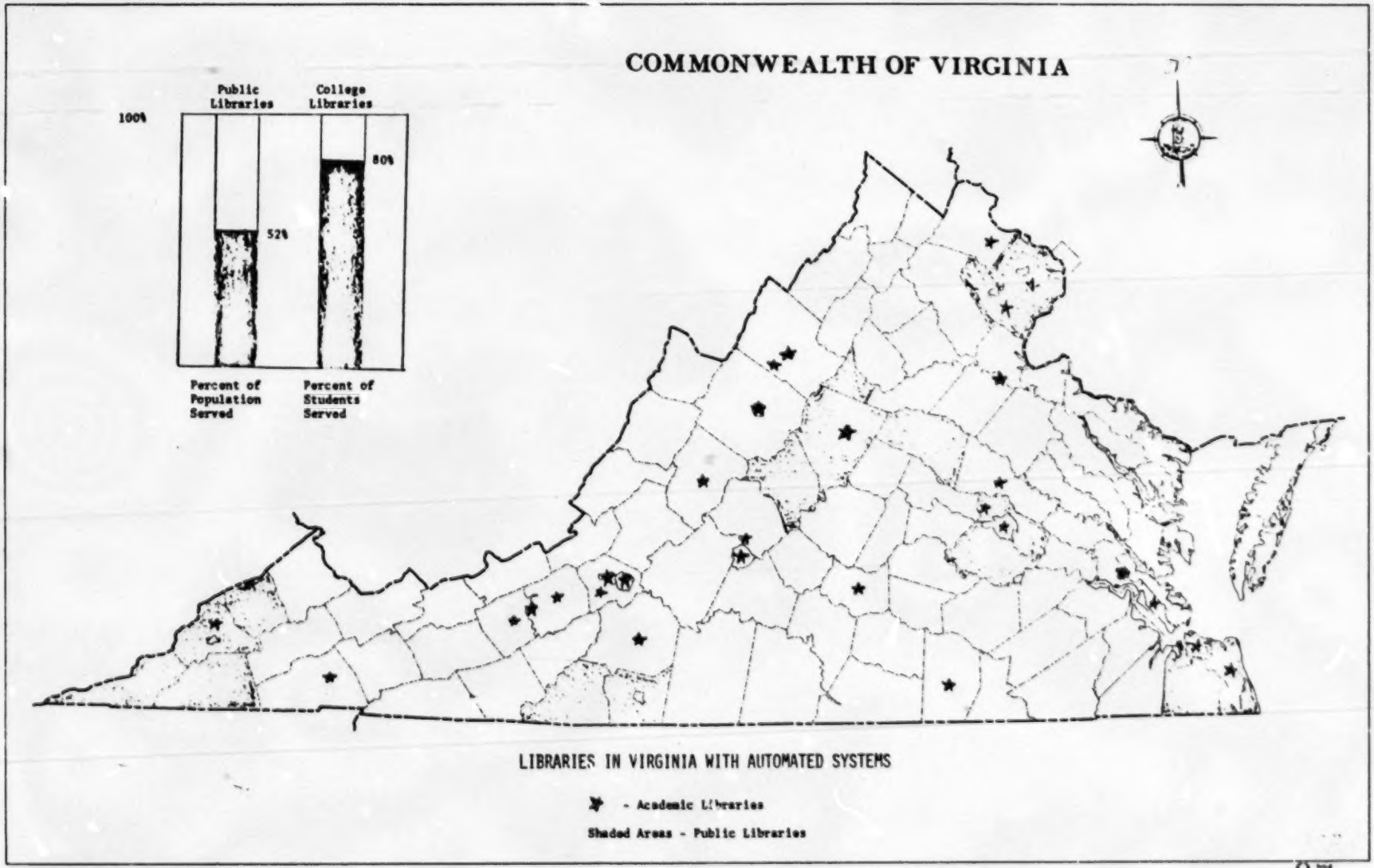
Clinch Valley College - Solinet

Lonesome Pine Regional - COM

COM - Computer-output-microfilm catalog

Solinet - Southeastern Library Network

Circulation - Automated circulation system


COMMONWEALTH OF VIRGINIA
Public Libraries
College Libraries
100%
52%
80%
Percent of Population Served
Percent of Students Served
LIBRARIES IN VIRGINIA WITH AUTOMATED SYSTEMS
- Academic Libraries
Shaded Areas - Public Libraries